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Southern Medical Journal

Journal of The Southern Medical Association

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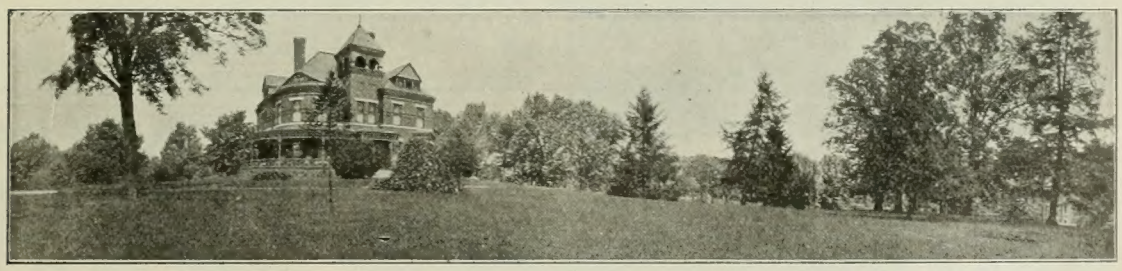

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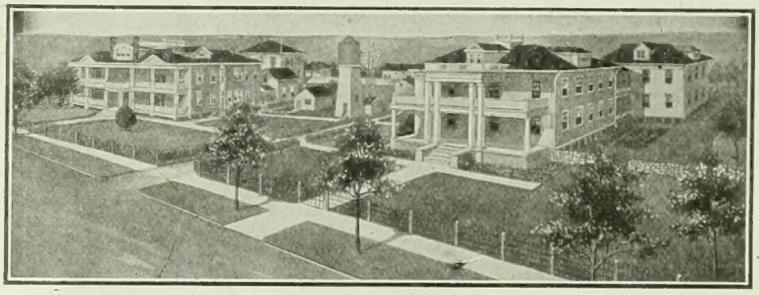

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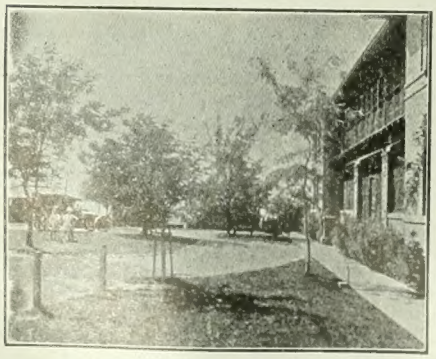

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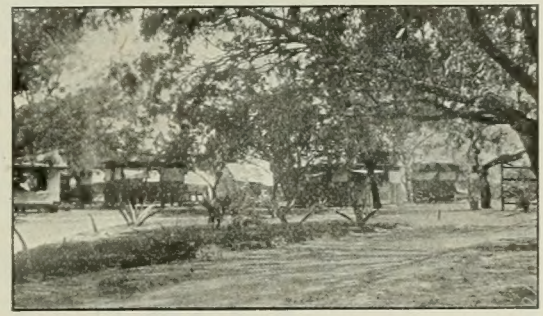

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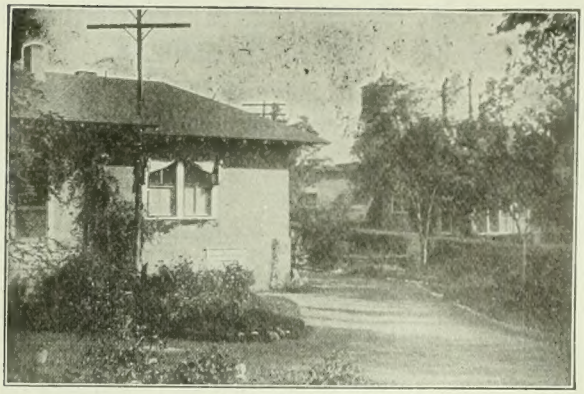

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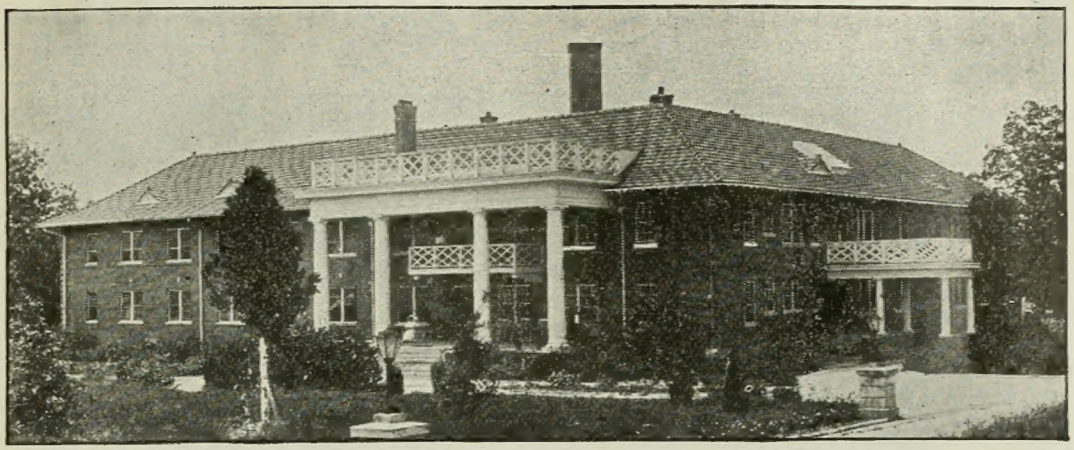

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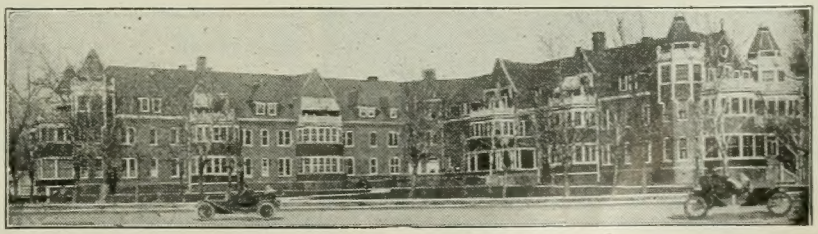

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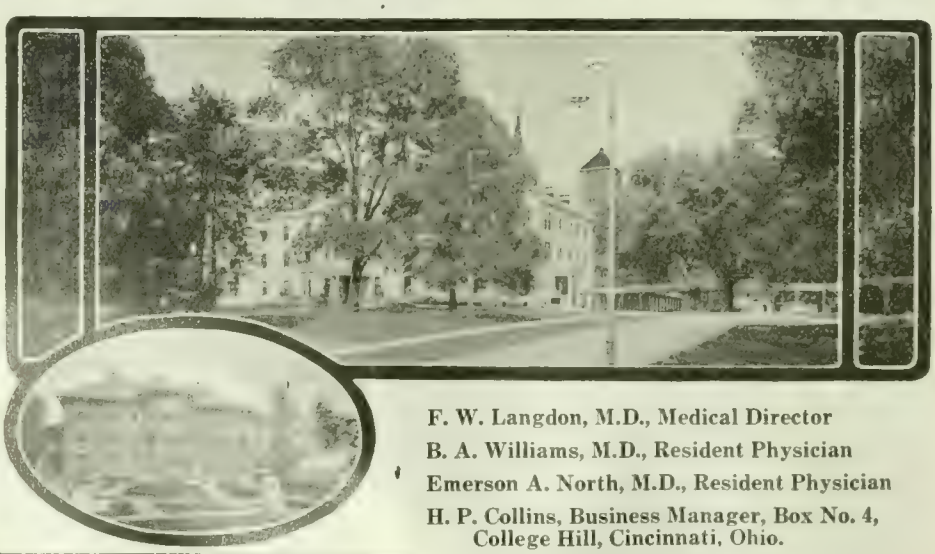

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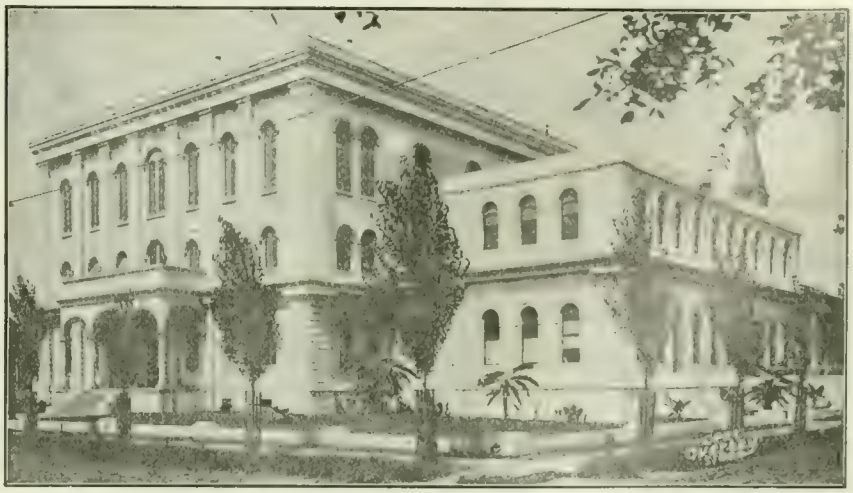

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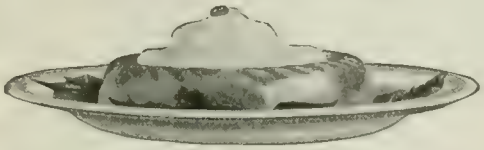

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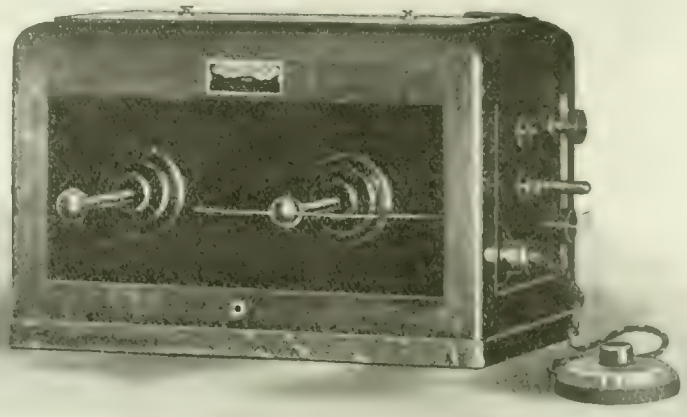

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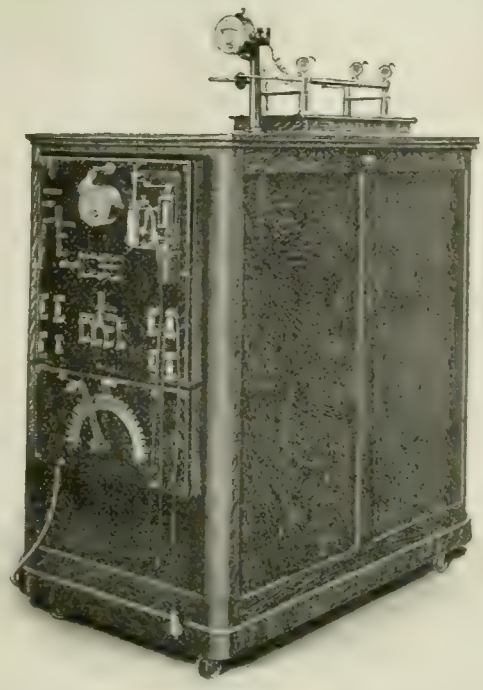

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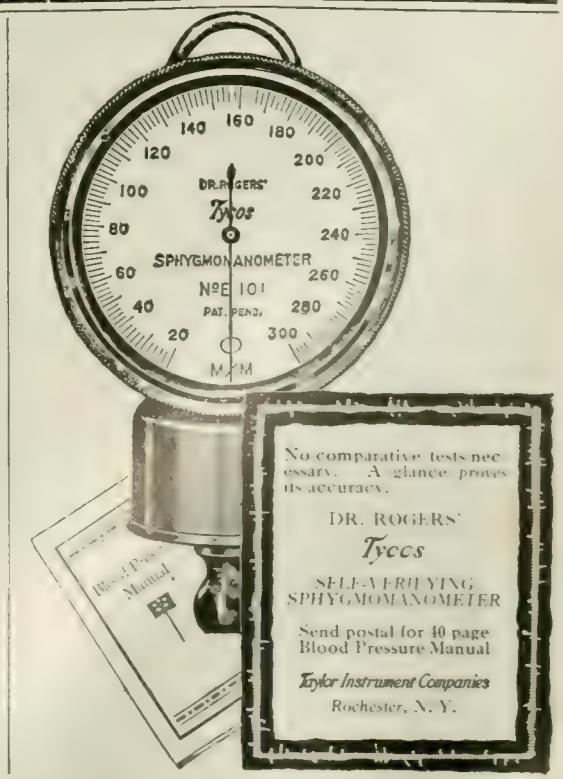

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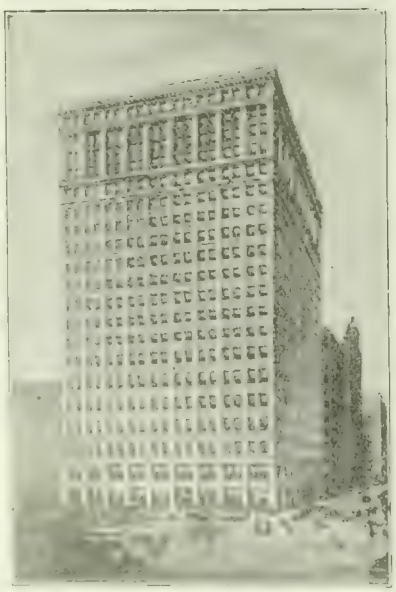

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MEDICINE

(INTERNAL DISEASES, PEDIATRICS, NEUROLOGY, DIAGNOSTIC METHODS, ETC.)

THE MANAGEMENT OF THE EARLY STAGES OF HYPERTENSIVE CARDIO-VASCULAR DISEASE*

By W. S. Thayer, M.D.,
Baltimore, Md.

In that part of this discussion which has been allotted to me it has seemed to me well to treat of a special class of cases out of the very large number of possible conditions which might be included under the heading of "cardio-vascular-renal disease,"—essentially the same sort of case to which Dr. Barker has referred at the opening of the discussion. In a word, I shall discuss the management of those common instances of hypertensive cardio-vascular disease, with or without marked renal or arterial change, which so often come into the hands of the physician. And, moreover, I shall limit myself to the management of hypertensives who come under our observation at a stage before there has been any serious cardiac failure.

The instances of hypertensive cardio-vascular disease which consult the physician at a time when the heart is still in reasonably good functional condition may roughly be divided into three classes:

1. Those patients with little or no evidence of vascular or renal change who show a beginning or well-marked hypertension.

2. Those cases that show some albuminuria as well as more or less demonstrable changes in the peripheral arteries or those of the eye-grounds.

3. Those instances associated with well-marked renal change with impairment of function, polyuria, decreased 'phthalein output, fixation of the specific gravity.

Many of the patients belonging to all these groups consult the physician because during the examination for insurance, or for entry into some mutual benefit organization, an unsuspected hypertension is detected. Others may have noticed a throbbing of the vessels, especially at night, or a slight vertigo, or headaches, or, perhaps, a little dyspnea on exertion. These men, as we all know, are very apt to be persons of a nervous temperament who have been heavy smokers or eaters or engaged in an occupation involving tense mental effort or physical strain. It is in the stevedore on the one hand or in the overwrought stock broker on the other hand that such pictures are especially common.

With regard to all three classes of patients there are certain points of treatment in this stage of the disease which we may consider in common.

REGULATION OF THE MANNER OF LIFE

In the first place one can not too strongly emphasize the truth that at this time more, often, can be accomplished for the patient by a deliberate, careful inquiry into the habits of life and surroundings and by a quiet, earnest exposition of the proper course that he should pursue than by any medical treatment that can be suggested.

*Read in Section on Medicine, Symposium on Cardio-Vascular-Renal Disease, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

Time is often the most important service that a physician can give such an individual.

At the outset let the patient see to it that he begins the day deliberately. Many nervous hypertensives start out on their daily routine in a rush. One should find out the length of time that the patient takes to dress and should see to it that he gets up early enough in the morning to dress without hurry; often it is well to advise him to read the newspaper while dressing. Many a man can train himself into less hasty, more reasonable habits and can make his day materially more comfortable by getting up a quarter or a half an hour earlier in order that he may dress and prepare for the day deliberately.

Let him take plenty of time for his breakfast and especially see to it that his regular morning habits be not interfered with by undue hurry. Let him then learn to watch himself, to talk to himself, to check himself when he finds himself running upstairs two steps at a time or walking along the street or about the house at an unnecessarily rapid pace. Endeavor to impress upon him the truth that he can save time and a headache by *writing* deliberately.

According to the circumstances, it may or may not be wise for him to walk to his place of business, but let it be clearly understood that however much good the exercise may do him, anything that starts him on a career of hurry is harmful.

Let him be extremely deliberate in his eating. If he take his meals alone, let him cultivate the habit of reading a newspaper or a book at table if that be necessary to keep him from habits of bolting his food.

Let him avoid the drinking of an undue quantity of fluid at meal times. In general, it is wise to restrict such a patient to a half glass of water at meals, however much it may be well for him to drink in the day. Let him see to it that he takes at least an hour in the middle of the day for his luncheon or dinner, and that he have not less than fifteen minutes' rest after he has left the table.

TOBACCO

Inquire carefully into his habits as to tobacco. There can be little doubt that too many strong cigars are very harmful to many hypertensives; but the question as to whether tobacco shall be forbidden or not depends entirely upon the patient. To many men who have been habitual smokers the complete prohibition of tobacco is an unnecessary hardship. Such patients may often be allowed a cigar after each meal, but rarely more.

The way in which a man smokes is also extremely important. To many men, the smoking of a mild cigar while at rest after a meal is a soothing and beneficial procedure, while to hurry from the table and smoke the cigar while engaged in active mental or physical work is exciting and harmful. Let the patient understand that his cigar, if it be allowed, must be smoked during a period of complete relaxation, reading or conversation or rest.

With many individuals it is wise, however, to advise abstinence from tobacco. This applies especially to those who can not smoke at all without smoking to excess. It is also true of some patients who show annoying and persistent extra systolic irregularities or of those who "feel," though they may enjoy, even a light cigar.

DIET

As to diet, much depends upon the individual. It is well to inquire carefully as to the habits with regard to tea and coffee and as to their effects. The overstimulation that some nervous men experience after strong coffee or tea it is most important to avoid. Sometimes the patient recognizes this; sometimes he may not. It is generally wise to encourage the taking of the morning coffee well diluted with boiled milk as *cafe au lait*, and to allow only a small cup after the main meal. Those who are conscious of overstimulation should avoid it altogether or substitute for it one of the decaffeinized products. The same considerations apply to tea.

If there be no evidence of essential renal involvement, one need impose no special restrictions with regard to diet excepting moderation in the amount eaten at one time and in the quantity of animal food, allowing eggs in the morning, at the main meal a moderate quantity of meat or fish of any sort, while at the third meal as a rule no meat should be permitted. With such patients it is often well to establish the habit of a light breakfast in which the only animal food consists of a little bacon,

and permitting eggs at the third meal, luncheon or supper.

If there be evidence of a decided renal involvement or of intestinal putrefaction, it may be well still further to restrict the proteins, allowing animal food at but one meal in the day and then in very moderate quantity, or even restricting this to several meals in the week. If the patient take a light breakfast, a glass of buttermilk in the middle of the morning or an early lunch may be wise.

The amount of fluids that should be taken is often an interesting question. As a general rule in hypertension it is unwise to advise excessive drinking. Often it is well to restrict the total fluids to 2,000 or even 1,200 c. c. in the 24 hours.

ALCOHOL

With regard to alcohol, the question is an interesting one. There is little to show that alcohol is directly responsible for the development of hypertension, but there is a good deal of reason to believe that that which is induced by or associated with an immoderate use of alcohol is injurious, namely, heavy eating, smoking, exercise, excitement, sexual excess. In a young man it is always well to advise extreme moderation, if not complete abstinence from alcohol, for we know how small an amount is actually utilized to the benefit of the average healthy man. With older people, particularly those who have been in the habit of drinking moderately, the permission of a little light wine with meals or a little regular alcohol in the shape of whiskey or beer is certainly not so harmful as to justify interference with established habits that mean much to the comfort of the patient.

PHYSICAL EXERCISE

With many of these patients moderate out-of-door exercise is very helpful. The man who has been an enthusiastic golfer need not be forbidden his exercise because of a tendency to hypertension. If such a patient can arrange to get off from his business two or three times a week early enough to play deliberately a round of golf, he may be greatly benefited. Often, however, in our cities, the active business man has not the opportunity to go out on the links. For such a man or for one whose symptoms have been so marked that even the exercise of moderate golf seems too much, hydrotherapy and massage are extremely beneficial. Where a well-conducted hydrotherapeutical establishment is at hand, let the patient arrange three times a week to leave his office a little early and to give an hour or an hour and a half to hydrotherapy. A warm salt tub bath, a salt rub, an intermittent hot and cold douche, a good general massage followed by a sufficient period of rest, will in the long run give the patient without much effort on his part, much of that which a game of golf might otherwise have given him.

Riding is a particularly valuable form of exercise for these patients. Where it is possible, a ride on horseback at the end of the day is most beneficial. After a ride and a bath the strain of the busy hours vanishes. Old Cotton Mather wisely said: "The saddle is the seat of health."

AVOIDANCE OF CONSTIPATION

It is extremely important to establish regular habits as to the stools. If there be a tendency to constipation the eating of fruit, especially citrous fruits at night, and of coarse vegetable foods, is very helpful. Such a patient should be carefully trained in his habits. He should be taught that it is inadvisable to allow himself to have a movement of the bowels at any other than the regular established time, and if assistance be necessary, he should restrict himself to the use of non-irritating substances such as agar-agar, one or two teaspoonsful of the coarse powder three times a day with his meals or a tablespoonful or two of one of the mineral oils at night, or in some cases both. It is astonishing how many people who have regarded it necessary to take a regular laxative can train themselves into habits of perfect regularity by obeying these general rules. If the patient be one who travels considerably he should make it a rule to carry with him on his trips a bottle of glycerine suppositories, one of which, if necessary, he may use at the regular hour on the railway train.

LOCAL FOCI OF IRRITATION

It is important to search for and to endeavor to remedy any source of local irritation or strain. It is particularly advisable to be sure that errors of refraction are properly rectified. Attention should also be directed to focal infection in the

nasopharynx and accessory sinuses, teeth, as well as to digestive disturbances.

MEDICAL TREATMENT OF HYPERTENSION

Medical treatment directed toward modifying a hypertension as such is rarely necessary and is sometimes harmful. The exact physiological significance of hypertension is by no means clearly understood and to give the nitrites at random to "knock down the blood pressure" as the common phrase runs, is not a rational procedure. Hypertension is an indication of some functional or anatomical bodily abnormalities, often of the kidneys, sometimes of the vascular apparatus, but it is by no means clear that the hypertension itself may not in some instances be a conservative phenomenon. In cases with grave renal involvement a fall in blood pressure often precedes or ushers in the manifestations of uremia, and a rise is not uncommonly seen in connection with convalescence. Some of us have seen instances in which uremia has followed so immediately upon the artificial reduction of blood pressure as to suggest strongly that our ill-considered attempts at therapy may have been responsible for its onset.

HEADACHE

Headache is often an annoying, and sometimes a baffling, symptom. It may be due to errors of refraction or to sinus disease; it may depend upon constipation or other digestive disturbances; it may be an evidence of an associated nephritis; it may depend upon the high nervous tension of the patient; it may perhaps be associated with definite changes in the central circulatory apparatus. If, after attention to the eyes or to focal disturbances in the nasopharynx and sinuses, after suitable treatment of constipation or of any disorders of the digestion, one suspects that renal changes are at the bottom of the symptoms, it may be wise to put the patient for some time upon a diet as low in proteins as possible. This in some instances is followed by excellent results. Often obstinate headache, for which no cause is apparent beyond the hypertension, yields quickly with a vacation or a relaxation from the strain of daily life. There are some headaches, however, probably dependent upon cerebral arteriosclerosis, that persist despite all treatment. Here temporary relief may be obtained from the nitrites. Sometimes I fancy I have seen benefit by the purely empirical administration of small doses of iodid of potassium, G. 0.2 to 0.25 (grains iii to iv), three times a day. Such patients should be urged to arrange their lives so as to have a long summer vacation, a vacation of at least a month if possible. And especially to the man of forty or over the importance of occasional short periods of rest during his working year should be emphasized; it is generally much easier to accomplish this than the patient realizes, and the doctor should not allow himself to be led astray by the common conviction of the patient that a change in his manner of life is impossible. Many a hypertensive leaves for his vacation tense and driven. With removal from the scene of his activities he forgets his worries, enters into a normal out-of-door life, engaging gradually in sports in the open — long walks, golf or even tennis—and after a summer of fairly vigorous exercise he returns to his work with fresh energy and a materially lower blood pressure.

It is often well to encourage the patient while at home to enter upon a regular morning and evening course of simple calisthenic exercises adapted to the physical condition of the individual. Good suggestions may be found in J. P. Mueller's "My System." He who has once learned to go through systematic daily calisthenic movements is not likely willingly to give them up, for he soon becomes conscious of their stimulating and beneficial effect.

Especially important is it in talking with these patients to emphasize the relatively good prognosis in many instances of chronic hypertensive disease; to avoid discussing with the patient the figures of his blood pressure, a most pernicious and dangerous habit; and if the patient becomes much worried about it, to avoid taking the pressure more frequently than is absolutely necessary. There are few more pathetic pictures than the person who, because he has heard that his pressure is over 200, is beset with the fear that he may have but one or two years more to live. Two patients consulted me, respectively, 14 and 13 years ago, for symptoms associated with hypertensive cardiovascular disease. In neither patient have I ever seen the pressure below 220. The first, a lawyer, was married two and a

half years ago at the age of 65 and remains after 14 years, to all intents and purposes, a well man; the other died about a year ago after an illness of about three months. For nearly 12 years, however, he was the president of a bank and in efficient physical condition.

CONCLUSION

To sum up the essential points in the treatment of hypertensive cardio-vascular disease in its early stage:

The influences that are likely to aggravate a hypertension are undue mental or physical strain or excitement, heavy smoking, immoderate eating. These influences may best be eliminated by relatively simple physical and psychical means. Gain the patient's confidence, endeavor to encourage him, to relieve his fears and to make him appreciate that the essential thing in life for him is moderation in all things—eating, drinking, tobacco, mental or physical effort. Give the patient careful, detailed advice as to his daily habits. Search for and endeavor to remove local sources of irritation, errors of refraction, sinus disease, gastrointestinal disturbances. Try to bring it about that he may take vacations of sufficient length and may learn to seize the opportunity for short interruptions in his life's routine. Teach him to take simple calisthenic exercises and encourage outdoor sports when his physical condition allows it. If such exercise be impossible or seem inadvisable, endeavor to arrange for regular massage and hydrotherapy. Do not attempt medically to treat hypertension in itself.

Endeavor especially to prevent the patient from developing an undue interest in his own blood pressure.

Editor's Note.—The above paper by Dr. Thayer completes the publication of the papers read in the Symposium on Cadio-Vascular-Renal Disease. The other papers read and published were: "The Classification and Relations of Cardio-Vascular-Renal Diseases," by Dr. Lewellys F. Barker, Baltimore, Md., published January; "The Role of Food in the Etiology of Cardio-Vascular-Renal Disease," by Dr. Allan Eustis, New Orleans, La., and "Syphilis as a Factor in the Production of Cardio-Vascular-Renal Disease," by Dr. Douglas VanderHoof, Richmond, Va., published February; "Significance of Hypertension," by Dr. C. W. Strickler, Atlanta, Ga., and "Renal Functional Tests," by Dr. J. T. Geraghty, Baltimore, Md., published March; "Cardiac Efficiency in Relation to Cardio-Vascular-Renal Disease," by Dr. Jas. S. McLester, Birmingham, Ala., and "Prognosis in Cardio-Vascular-Renal Disease," by Dr. George Dock, St. Louis, Mo., published April. The discussion of the Symposium follows.

DISCUSSION SYMPOSIUM ON CARDIO-VASCULAR-RENAL DISEASE

Papers of Drs. Barker, Eustis, VanderHoof, Strickler, Geraghty, McLester, Dock, and Thayer.

Dr. Robert Wilson, Jr., Charleston, S. C.—Under the subject of cardio-vascular-renal disease are included a variety of conditions due to various causes which I think, for practical purposes, we may group under two main divisions. In one, organic change or sclerosis, begins in the large vessels. This condition is not necessarily associated with hypertension. In fact, we find quite frequently a normal or, perhaps, a low tension, although the arteries are distinctly thickened. The other group of cases is that in which there is a chronic hypertension without sclerosis, at least until the condition has lasted for a long time. I prefer not to use the term renal, but rather to speak of the condition as cardio-vascular disease, inasmuch as the renal involvement, while exceedingly common, is not essential. The condition of chronic hypertension has interested me especially. These conditions are probably dependent upon some form of intoxication, as has been emphasized in some of the papers this morning, and probably also in many instances are the result of a chronic infective process.

I was very much interested by Dr. Strickler's suggestion of the probability of many of these cases' being due to focal infections, about which of late years we have heard so much. The sclerosis, in those cases in which there is hypertension without evident change in the larger vessels, is nearly always in the small arterioles, justifying the expression used by Dr. Barker this morning of anteriolar sclerosis. The condition may be so serious as to terminate fatally from cardiac decompensation or from cerebral accident without essential or necessary involvement of the kidneys. I wish also to lay some stress upon the importance of determining the diastolic as well as the systolic pressure. In following our high pressure cases the estimation of the diastolic pressure is of equal value with the systolic, and often of greater value. It should not be disregarded as is so often done.

What Dr. Thayer said about the danger of knocking down, as he expressed it, the high tension in the treatment of these cases can not be stressed too strongly. We seem to forget sometimes that hypertension is in reality a process of compensation, and many times patients are much better off with a high than with a low tension. A man with a systolic pressure of 190 may be far more comfortable than when the pressure falls to 160 or 170. In such a case we are pretty apt to find that the diastolic pressure remains high. Nature has established the high pressure in order to overcome the obstacle created in the arterioles and in such a case we should attempt to raise the pressure and re-establish the condition brought about by nature. To give patients with high tension such drugs as the nitrites for the purpose of reducing the pressure without

regard to other conditions is very apt to produce harmful results. The best mode of treatment is that which Dr. Thayer has outlined, namely, the regulation of the patient's habits of living, especially his eating and drinking habits, without the use of drugs.

When we get hold of these cases early we can often do a great deal for them. Some time ago a man consulted me, not because he thought he was sick, but merely because he took a notion to have himself examined. Apparently he was a well man, but was living under a considerable degree of tension, working hard and subject to no little mental anxiety in his daily business. His habits of living were bad. I found him with a systolic pressure of 200. A frank talk with careful instruction as to how he should live and what restraints he should put upon himself was followed by most gratifying results. When I saw him again several months later his tension had gotten down to a fairly normal range. If the hypertension is allowed to continue for a long time organic changes develop and it is then too late for us by any therapeutic measures to relieve the condition materially, although we may be able to ward off the fatal termination for a little while; but taken in the beginning, and proper treatment instituted, we may be able to do a great deal toward restoring normal conditions.

Dr. Randolph Lyons, New Orleans, La.—Great stress has been laid upon the question of toxemia as the fundamental cause of hypertension. It is a difficult thing to prove or to gainsay. The essayist speaks of autointoxication. By that I suppose he means intestinal putrefaction with absorption of toxins, or possibly absorption of toxins anywhere in the body. It has not been my experience to come across many cases of that type of hypertension. I have had some cases in which the hypertension was undoubtedly due to intestinal putrefaction with absorption. I have reference particularly to such cases as Dr. Eustis talked about with a large amount of indican in the urine. On the other hand, a majority of my cases have not had large amounts of indican. Some of them have had none at all after repeated examinations for it. It may be that they had a toxemia before they developed well-marked hypertension.

It is very essential for us to differentiate persistent hypertension from the transient cases of hypertension. We come across a great many individuals who have a high blood pressure at the time we take it; and when we go into the history carefully we find that it is due to a large number of incidental causes which have been mentioned by previous speakers, such as worrying, various infections, syphilis, focal infections, etc.

When we come to the cases of hypertension that are persistent, the majority of them have had or have some renal involvement. I think the more we use the newer tests, such as the Rowntree and Geraghty test, the renal function diet test, and others, the more we indict the kidney as being involved, — the kidney arterioles and arterioles of other organs to which Dr. Barker referred this morning. It is probable that in former years the kidney would have been indicted more than it has been, except in former days we did not have these tests, and we depended chiefly upon finding traces of albumin and casts and polyuria.

Dr. H. A. Peyton, Jacksonville, Fla.—The paper I have been asked to discuss is that of Dr. Geraghty on renal tests. While Dr. Geraghty was reading his paper the following points occurred to me that might be worthy of consideration. First, any renal test which is founded upon an insufficient knowledge of kidney physiology is necessarily unscientific, or in other words it is empirical. This is not offered as a criticism of renal functional tests, but merely a statement that bears out the contention of Rowntree and Geraghty that all such tests are empirical. For this reason Schlayer's renal test of lactose, potassium iodid, salt and water has failed in the classification of the various types of nephritis. It has not fulfilled his statements for the reason that he presupposed a knowledge of physiology which in reality did not exist.

The second point bears on the indications of these tests, when they should be used, and the necessity of frequent repetition. They will be found of considerable value in all renal disturbances whether of a medical or surgical nature. In the latter the information is more exact and easier of interpretation than in the former. It is my idea that too much reliance should not be put on a single determination, as the test will give you the functional capacity of the kidneys only at that particular time. This is particularly true of cases of acute nephritis. The function of the kidneys today may be quite different from next week. So to derive the most benefit from these tests, and now I am speaking more particularly of the 'phthalein test, they should be frequently repeated. Only recently Cabot and Crabtree, of Boston, cited the history of a patient who while under observation developed an acute pyelonephritis. His kidney function, which previous to the attack had been normal, dropped suddenly to 20 %. As the condition improved there was a return practically to normal. I mention this to emphasize the point that if the test had been done once, i. e., during the attack, there would have been an erroneous conception of the functional capacity of the kidney.

So it is in acute nephritis. It will be found that when the disease is at its worst, the function will be lowest; and if we give a prognosis, then, solely on one test, it will be a bad one. If we repeat the tests and find the function improving along with the clinical symptoms, we are able to give a better prognosis. This does not hold true with chronic nephritis, but it is better to have repeated tests because they act as a check on the treatment. A steadily increasing amount of 'phthalein under treatment, of course, will mean improvement; a decreasing amount, even in the face of unchanged clinical symptoms, would make us alter our prognosis.

As to the requirements of any functional test, it must be easy of application to be practical. There must be a maximum amount of information obtained with a minimum amount of work and apparatus. For this reason a large number of tests that have been advocated are not practicable in the hands of the average practitioner. I still feel that the blood-urea test is too complicated for general use and that the determination

of Ambard's coefficient is far too complicated. The 'phthalein test is eminently suited to the needs of the average man and can be applied by any one with a little preliminary study. It gives practically all the information obtained by the combination of the other tests and has its extreme simplicity to recommend it. While its performance is not a formidable procedure, it should be carried out with a due regard to the proper technic. Practically all the criticism of this test that I have heard has come from those who either have not used the test at all or who have carried it out with careless technic and with an insufficient knowledge of the underlying principles.

Dr. W. H. Witt, Nashville, Tenn.—Dr. McLester properly pointed out the fact that we must constantly keep in mind the important part of the heart for functional purposes, namely, its muscle. While we are constantly seeing that statement in text-books, in papers, and discussions, it is just as constantly underrated, so that it is exceedingly common to find physicians attaching too much importance to the existence of a murmur and, as Dr. Dock has said, putting restrictions about the lives of people, young people particularly, that are entirely unwarranted.

An efficient heart is bound up more or less with the prognosis of heart conditions and this will vary very much, depending upon the etiology, which is to a large extent also dependent upon age. The heart of a child, if affected, is almost invariably involved in infectious processes, a streptococcus infection of some origin, which attacks, for the most part, particularly as far as the chronic features are concerned, the valves and not the heart muscle, although in the initial attack and in subsequent attacks the heart muscle is very much involved. The heart muscle of a child is able to do a great deal; it is able to respond many times and to overcome many attacks of infection. My observation has been that these children do not die of chronic valvular lesions *per se*, which is the chief thing we see upon examination, but in nearly all cases they die of a second, third, fourth, fifth, or a sixth infection, no matter what its origin. The source of infection may be in the tonsils, and it is in one of these acute attacks that the children go out. So I would make the point here that the efficiency of the muscle of the heart of a child is best conserved and the prognosis is best maintained by prevention, as far as we can, of subsequent attacks of acute infection, because there is where the great danger lies. That simply means the child should be subjected to careful analysis for foci of infection, no matter where located, and all these foci eradicated just as promptly as can be. Surgery will not kill the child, and so many times delays are instituted that go beyond what is reasonable.

As we get to the older class of patients, with luetic hearts or hearts associated with definite vascular changes, the efficiency of the heart muscle becomes different from its former efficiency. In connection with the subject today we think especially of renal involvement. Many cases of heart disease have to be studied from the standpoint of their association with vascular change or with renal change, and in a good proportion of them, where there is loss of compensation, we may have difficulty in telling whether we are dealing with a cardiopathy in itself or whether we are dealing with a renal change also. It is in such cases that the results of treatment and the rise of the 'phthalein test help in an early differentiation. There is of course no such power of recuperation in hearts of this class as there is in those of streptococcus origin in earlier life.

Dr. John T. Halsey, New Orleans, La.—With the same facts before them, all too often doctors will disagree about the diagnosis to be made or the treatment to be instituted. But it is in connection with the prognosis that there is the greatest diversity of opinion. A great deal remains to be learned, and there is not very much that at the present time we can say with positiveness about the prognosis of the conditions under discussion in this symposium. There are, however, one or two points in connection with the prognosis of cardio-renal disease that I would like to make.

If I make the statement that in many cases the prognosis depends upon the treatment, and that the treatment to be instituted depends upon the character of the prognosis, I appear to be talking in a circle, and yet I believe that the circle represents something that we should bear in mind in forming our prognosis and determining the treatment to be prescribed. When I state that the prognosis often depends upon the treatment, I have in mind especially two things. One is, that the prognosis must often remain uncertain until we have learned by trial whether or not the patient will respond favorably to proper treatment. The other is, that many a case will do well if properly treated, and will go down hill rapidly if improperly handled. When I state that the correct treatment in many of these cases depends upon the character of the prognosis, I do so because I remember so many cases where the patient or his family has been put to an unnecessary sacrifice of money, of happiness, etc., when the game was not worth a candle. Many a man whose condition was hopeless has been sent to this or that watering place or sanitorium, or made to give up business and make all sorts of sacrifices, where there has been no reasonable hope that he would be benefited. The converse of the above may be and is equally true, viz: that undue pessimism on the part of the physician has often led to a failure to carry out a treatment which would have proven of great or even lasting benefit. In closing I repeat the statement that prognosis and therapy often mutually influence each other and therefore should be considered in this mutual relationship.

Dr. Stewart R. Roberts, Atlanta, Ga.—It is desirable to divide the management of the cases included in this symposium into three stages: first, their classifiation; second, the thorough clinical and laboratory investigation of the case; third, the practical therapeutic management of the case, and under therapeutic management is to be included all those agencies and influences such as habits, the revision of mental strain, sleep, and rest, as well as drugs.

First, our classification differs slightly from the one proposed by Dr. Thayer and is more modeled after the one proposed by Allbutt. Any classification of this great group, however, is neces-

sarily elastic, because rather arbitrary. Nature draws no hard and fast lines in this group and the different types may dovetail and insinuate themselves into each other. It is well to say here that up 'till ten years ago, we heard a great deal about arteriocslerosis, and in the last ten years we have heard a great deal about hypertension, and probably in the future we shall more nearly relate the organic pathological processes of arteriosclerosis with the more functional pathological physiology of hypertension. Arteriosclerosis is one thing and hypertension is quite another. And hypertension in a patient does not necessarily mean arteriosclerosis, nor does arteriosclerosis necessarily mean hypertension.

I should divide this group into four great types:

1. Hyperpiesis, or simple hypertension, an increase in pressure without demonstrable arteriosclerosis or changes in the heart or kidneys of marked degree. Hypertension may later culminate in a compensatory arteriosclerosis.

2. The toxic arteriosclerosis, which is accompanied or followed by a secondary hypertension. Such cases included here are based upon the combined influences of one or more toxic agencies such as tobacco, alcohol, narcotic drugs, syphilis, infectious diseases, overeating, constipation, lead poisoning, gout, and many others. This type of course may later glide into the renal division.

3. The decrescent arteriosclerosis, in which the heart is not enlarged, the vessels are notably arteriosclerotic, and the pressure is not raised for the age of the individual.

4. The renal type or vascular nephritis, or the old chronic interstitial nephritis. In this type we find the classic group of clinical symptoms: early morning headache, night urine, hypertrophied heart, granular kidney, arteriosclerosis, and hypertension.

Second, comes the thorough investigation of the case. This includes a careful history with time devoted to the investigation of the patient. Here the life of the individual is the sum total of his habits and his habits have probably gone a long way in producing his disease. Next comes the clinical examination, and thirdly the laboratory work. The laboratory work here is important and includes blood, urine, functional test of the kidneys, feces, and a routine Wassermann. No man can tell in these cases without the Wassermann and without the admission of the patient that his cardio-vascular-renal picture is not merely a vascular confession of syphilis.

Third, the therapeutics of the case involves, we think, on the part of the patient a mental relaxation from the influence of his habits and his disease. To this end, we have endeavored to construct a series of therapeutic epigrams whose very simplicity and practical application to life at once unconsciously make our patient an accomplished partner in the treatment of his case. We take him into our confidence, we tell him his condition, and we advise him what to do. We tell him he has come to the parting of the ways physically and that he and we are to take stock of his physical condition, of the influences that produce it, and of the changes that are necessary to continue him more safely in life. We impress upon him that he has been running in high speed and that it is necessary to re-educate him to revise his habits and to get him to hurry up slower. He has been living after the manner of the twentieth century American and he should begin to live after the manner of the ancient European. We quote from Lincoln's famous paragraph on Rules of Health, "go slow and go easy," and he often smiles. He has been going fast and furiously. We advise him to "begin to ease along," and then after beginning "just ease along, ease along." And then cap it with this climax, that in his present condition there is nothing in this world that is worth hurrying about or worrying about, or getting nervous about, or getting excited about; we will go on in life, and go on calmly. A word Dr. Thayer used was beautiful, the word "deliberation." In our modern life we leave out the function of meditation, both physical meditation and mental meditation.

We emphasize the importance of rest and the necessity of vacations. We ask the patient how many vacations he has taken in twenty years. We tell him that the man who takes a vacation can do twelve months' work in eleven months, but that no man year after year can do twelve months' work in twelve months. We point out to him that his arteries, his kidneys, and his heart grow faster than the rest of his body without proper care and that neither his arteries, kidneys nor heart live unto themselves alone, but that they all live together and are dependent one upon the other. We should strive for a harmonious life and we must so form and fashion our habits that they shall harmonize with the strength and age of our bodies. We go into his habits in detail and try not to give any medicine until the habits are regulated and re-regulated, and until the patient takes on a sensible series of habits and gets up deliberately, dresses deliberately and learns not to hurry and not to worry. The importance of his diet is pictured to him. A very good epigram that works well is this: "After forty it is a good rule to eat half as much and chew twice as long."

The patient frequently asks the question, "Doctor, what is the danger?" We tell him candidly that the danger ultimately is heart failure, apoplexy, failure of the arteries, uremia, or failure of the kidneys; but that if he regulates his habits, so far as human foresight is concerned, he may live indefinitely. We try to get the idea of blood pressure out of the mind of the patient. We never refer to it, nor do we tell him its measure. Just as soon as the final click of the diastolic pressure disappears we instantly change the subject and talk about the results of the election, or the weather, or baseball. We never let the patient know what his pressure is.

With these methods we have come to find that medicine in a case is often the least of our agencies; and in recent months I have had more results, as far as simple hypertension is concerned, with the nitroglycerin tablets, given after the method of Janeway, on the tongue, and that not continuously; if continuously in certain cases not more than once or twice daily.

Dr. Charles L. Minor, Asheville, N. C.—Important as the digestive tract and toxemias originating here are in the causation of arteriosclerosis, I believe that the chief factor in America is the high tension of our modern American life, and I

was delighted to hear Dr. Roberts and Dr. Thayer stress this point. It is not enough simply to tell the patient that he must get more mental rest. We must go into his life, win his confidence, impress ourselves upon him and see that he takes a totally new view toward his life. He must learn to relax when not at his work, and to do his work with less excessive and unnecessary tension. Probably the typical sinner in this direction is the New York stock broker, who lives at high tension all the time, assists himself with cocktails and spends his evenings in the very worst possible way; and to get hold of these men and teach them to change their method of living is a task to demand the best of any doctor.

The method of talking to these patients, which Dr. Roberts has referred to, is most excellent, and the first half hour's talk with one of them is absolutely essential if the succeeding treatment is to have any result at all.

I am extremely sorry to hear Dr. Thayer speak with such skepticism of our old friend iodid of potash. I recognize perfectly that whereas the pharmacological laboratory can demonstrate wonderful things as to the nitrites, it is much more difficult in laboratories to show why iodid of potash is effectual, but at the bedside its value is very easily proven, for the clinical bedside test is the final test of any drug. We have the experience of innumerable careful observers as to its value. All the text-books say a good deal about it, and while none of them knows why it works properly, they have seen enough of its use not to dare to turn it down. After much use of it I am perfectly satisfied that in doses of two or three grains, three times a day, kept up indefinitely, it has prolonged the life of many of my arteriosclerotic patients. Many explanations of its workings have been given, though none of these have been proven. That it works is so generally recognized by clinicians that we certainly are not in a position as yet to turn it down.

Dr. L. F. Barker, Baltimore, Md. (*closing*).—This discussion has been illuminating. I am sure when these papers are published in the SOUTHERN MEDICAL JOURNAL we shall all be glad to study them at our leisure.

I was put down to say a word or two in the discussion of Dr. McLester's paper on the relation of the heart to these conditions. I think he is quite right in re-emphasizing the idea that every renal patient is also a cardiac patient. I would venture also to state that every hypertensive patient, if he lives long enough, will become both a renal and a cardiac patient.

The way in which the heart fails varies in these cases. Sometimes, as he has pointed out, there is auricular fibrillation; more often still, a myocardial insufficiency supervenes.

One form of myocardial insufficiency met with in the hypertensive cases sometimes is that which comes on rather suddenly in a person who has had a blood pressure of 200 or more for a long time, with laboring heart and a great deal of subjective distress, and who suddenly seems to be much relieved of his symptoms. You take the blood pressure and you are surprised to find it has fallen to 160 or 140 or even lower. The patient feels, for the time being, very much better. You listen over the heart where before there was no murmur at the mitral orifice, and you hear a loud blowing systolic murmur. The heart has become "mitralized;" there has been dilation of the left ventricle, which was before contracting strongly enough to keep the mitral ring closed. The ventricle dilates more and more; the relative mitral insufficiency increases; there is relief to the heart; the hypertension is lessened, but the man is really going down hill, and it will not be very long before he will have serious trouble with his kidneys, or before his brain or the other organs not receiving a sufficient supply of blood, will begin to function abnormally. The dictum of Traube is a good one to follow in all these cases: "Protect the kidney and support the heart."

A good deal of stress has been laid upon getting rid of the primary foci of infection. That is a very important point; pyorrhea, abscesses at the roots of the teeth, paranasal sinusitis and other foci of infection should be sought for and, when found, removed. Dr. Dock has concentrated much wisdom in his paper on prognosis. What he has said seems to me to be in accord with the views of those that have had largest experience with the disease.

It is always interesting to hear how physicians talk to their hypertensive patients. It was an especial pleasure to listen to Dr. Thayer and to Dr. Roberts when they described their office conversations with hypertensive patients; what they have said furnishes us with examples from which every one of us can profit. Such simple advice as they gave as regards the every-day life of the patient is invaluable. I was glad to hear a low protein diet emphasized for the cases in which there is much headache. It sometimes acts quite promptly in relieving the headache.

As to iodid of potassium, to which Dr. Minor referred, I may say that I have read somewhere of a suggestion as to the way it acts. It was Romberg, if my recollection is right, who hinted that it may diminish the viscosity of the blood, and so relieves the symptoms of these patients. Some patients do feel better when taking iodid of potassium, but not all.

There is one group, especially, to the members of which I would never give iodid of potassium, and that is the group of hypertensives who suffer also from hyperthyroidism. I mean the group with prominent eyes, tremor, tachycardia, etc. If you give any form of iodid of potassium or iodin to such patients they will almost invariably say, when they come back, that they feel worse while taking the iodids.

A word about moderate exercise. There is nothing better for the younger and older men as long as the heart is competent. I refer to calesthenics for the older men, and especially to exercises that are done in bed under the covers, a method that appeals to many older people. Unfortunately, the methods of exercising in bed as published in a book that one is almost ashamed to give to patients without making an apology owing to the nonsense that, apart from the description of the exercises, it contains. The book is, however, excellent on the subject of exercises in bed. I refer to the book by Sanford Bennett. One can tell the patient to tear out the pages that describe the exercises and throw the rest of the book away. For younger people with beginning

hypertension the exercises described in I. P. Muller's "My System" are very good, as are those in Tait Mackenzie's book.

What was said about the cultivation of a life of deliberation, of equanimity, was excellent. There are some good little books one can put into the hands of restless, nervous patients that will help them very materially. Miss Call's "Freedom of Life" and "Power Through Repose"; the "Meditations of Marcus Aurelius," the booklet by Dr. Osler on "A Way of Life," President Wilson's "On Being Human," and Parot's "Education of the Will" are some that occur to me at the moment.

After all, it is the general practitioner who has to supervise and help the majority of these patients. The consultant sees them once or twice, but it is the general practitioner who sees them repeatedly and who can do most to help them.

One special word to the general practitioner and that is this: See to it that these patients come back to you at regular intervals to talk over the regulation of their daily lives. If they do not come back, go and find them or send for them to return. Unless they are checked up at tolerably regular intervals, they are very prone to get out of the right habits of life. The little volume by Fiske and Fisher entitled "How to Live" is a sensible treatise on personal hygiene that may safely be placed in the hands of patients to aid in this guidance.

Dr. Allan Eustis, New Orleans, La.—I consider it a privilege to have been asked to take part in this Symposium and to have had the opportunity of hearing the remarks of the several other speakers. However, I can not help noticing the marked difference in the welcome given now to the idea of intestinal toxemia as a causative agent compared to that in 1911. I have never claimed that intestinal toxemia is the sole cause of cardio-vascular-renal disease, nor that it is the chief cause, but have simply urged a consideration of this factor in the management of such cases. What I wish especially to impress upon the general practitioner is that while he is giving iodids or digitalis he should also think of calomel and cut down on the intake of animal food.

Dr. George Dock, St. Louis, Mo.—I would like to ask how many people one sees who can not stop taking tobacco without much trouble? Dr. Thayer seems to think a good many men find difficulty in so doing. I have seen a great many men stop the use of tobacco, including a great many doctors and others up to advanced age, and I have yet to see the first man who admitted he had any serious trouble in stopping tobacco practically at once. Tobacco and coffee both belong to the kind of poisons that do not produce immunity, and we should expect therefore that they could be cut out without any of the painful or disagreeable sensations that belong to some of the other poisons.

I would like to say a word or two in agreement with what Dr. Thayer has said in regard to the use of hydrotherapy in these cases. In my hands these patients are distinctly better or are greatly improved from the use of hydrotherapeutic measures. It is much better for them than golf, which is usually the prescription given the moment these patients are known to have such conditions.

Having been very much interested in the subject, for the last two years I have been able to follow cases in my own Hospital, where we have a good establishment of that kind. We have a regular clinic for men advanced in years who get their baths and treatment three times a week and from which they get the greatest benefit. All of them have been golf players, and it is better for them in one way because they always played the "nineteenth hole," and they do not get that when they are in the Hospital. It may be said, too, in regard to the bath, if a patient can not have access to such a place, a bath in the evening before going to bed is of great value, but it is necessary to tell these people that the baths must not be too warm. If you tell these people to take a warm bath they may run the temperature up to 105°, which is distinctly stimulating. The temperature of the bath should not be more than 96°; better a little under this. This bath should last 15 or 20 minutes.

I would like to put myself in line with those who believe that potassium iodid is of some value. I know it does not lower blood pressure. I have given people up to 500 grains a day for six weeks without seeing the least effect on the blood pressure.

I do not agree with Dr. Barker that it has any effect upon the viscosity of the blood. I think the experiments that have been made show that it does not change the viscosity of the blood. How it acts I do not know, but I think it is more than psychotherapy that makes it useful in all kinds of people. The ignorant Negro profits as well as the intelligent white. They do not have the pains of coronary artery disease or the pains of aneurysm; they feel better in every respect after they have been given potassium iodid. You do not need to give them the large doses I have mentioned. I only gave them as an experiment.

Dr. Roberts' remarks were good. I would question only one of his epigrams. If he speaks to some of his patients with a mechanical turn of mind they will not quite agree with his epigram about the auto. It is not that these people are going in high gear. If I understand the matter, that is the best way to avoid the bad effects in the engine. One of my patients, an old engineer, who came in with definite heart disease, said: "I have slipped my eccentric." That expressed it to him, but I do not believe high gear is the only thing. The patient must be taught many other things, and among them to avoid sandy roads, mud, getting too much oil in the cylinder, etc., but try to keep in high gear.

Dr. William S. Thayer (closing).—One or two words, first, with regard to what Dr. Dock has said concerning the question of difficulty in stopping the use of tobacco. I fear I have not made myself clear in this respect. I am not sure that I remember a man who has told me he could not stop smoking if he wanted to; that is not the problem. The difficulty to which I referred is in reducing the tobacco to an amount such as in the individual case might seem to be free from injury. There are many men who smoke too much who might, perhaps, with benefit smoke two or

three cigars a day. This, however, they say they can not do. They are willing to stop altogether, but are not willing to make the effort to reduce the number to two or three cigars a day, or feel that they can not do it. This I have seen frequently.

With regard to Dr. Minor's observations, I did not for a minute mean to make light of iodid of potassium. I said particularly that I used it at times in instances of headaches. I generally use it also in anginoid pains where I think I have seen it act beneficially. But I was not speaking of anginoid pains, but of patients in the early stages of hypertension where there are few subjective symptoms. I must say, however, that as time has gone by I have used less iodid of potassium as a result purely of clinical observation. I have not been in the habit of giving it in an attempt to benefit the hypertension *per se*. How it acts, I do not know.

One word more with regard to the question of prognosis. It is well in many instances to enter into some discussion of the prognosis with the patient. It is important to be able to give the patient as encouraging an idea of the prognosis as possible, and it is good to be able to call to mind and to tell the sufferer of patients who have done well. The patient does not, as a rule, ask for more; it is encouragement that he wants and hope will often lead him to adopt in his own case a happy optimism based on the encouraging experiences of others.

THE DIAGNOSIS OF PELLAGRA*

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The early recognition of this disease is a prime essential of its successful treatment. It is important, therefore, that the profession should appreciate the many obscure manifestations of deranged nervous or gastro-intestinal function, which frequently characterize pellagra for months or years before its diagnosis is clear.

It is presumed that the agitation of this subject throughout the South in the past decade has made all physicians familiar with the clinical features of classical cases. For purposes of this discussion, it is perhaps permissible to suggest a division into two classes: First, typical cases; second, atypical cases.

TYPICAL CASES

To the first division no unusual consideration need be given, but it is suggested they should include not only all those cases showing characteristic lesions of the skin and of the nervous and the digestive systems, but also such cases as develop a preponderating symptom-complex in any of these fields, and yet present fewer and possibly somewhat less certain evidences of disorder of the other systems. One can not subscribe to the doctrine taught by several writers on the subject that we must have a symmetrical, cutaneous erythema or dermatitis, the neurasthenic-complex and manifestations of disordered digestion, as shown in glossitis, gastro-enteritis or a toxic, remitting or uncontrollable diarrhea. This tripod of compelling symptoms is all too frequently absent or delayed 'till hope is abandoned, and such unnecessary precaution for science's sake may surrender the possibility of recovery to the fetich of diagnostic impeccability.

Considering, therefore, that cases presenting a well-marked erythema on the backs of the hands or about the neck, or a dermatitis of the usual characteristics, and not traceable to unusual insolation or chemical irritation, as practically typical, even if no pronounced symptoms of nervous or digestive disturbance are present, but with indefinite ill health in addition, I would feel justified in diagnosing such a case as pellagra, because in an experience of twenty-five years I have never seen such an eruption in any other disease.

It is, however, somewhat more difficult to be confident in regard to those cases presenting a red tongue with salivation and vague intestinal unrest, or even frequent enteric discharges, as this condition may be more closely simulated by mercurial stomatitis and gastro-enteritis, though the writer has never yet seen the fetor of this condition appear in any pellagrous stomatitis, nor has he witnessed the spongy looseness or ulceration of the gums as in the former. It must be said that certain other toxic conditions are associated with intense oral symptoms at times highly confusing. Among these may be mentioned certain cases of chronic nephritis, which present, intermittently, buccal and lingual inflammation with redness and swelling and increased saliva quite similar to pellagra; but, such cases are usually intermittent or occur only in the late stages of nephritis, and are unassociated with other evidences of pellagra, and always associated with convincing proof of chronic renal disease.

*Read in the Section on Medicine, Symposium on Pellagra, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

A still more difficult condition to differentiate is the transitory, somewhat symmetrical erythema of hyperthyroidism, which may present at the same time the salivary increase, the slick, red tongue and even a stubborn diarrhea, paroxysmal or constant. Commonly, however, this erythema is not symmetrical. It is more splotchy in character on the extremities and more likely to be associated with suffusion of the face, lips and thorax, and has never the symmetrical arrangement on the backs of the hands extending to the flexor surfaces and ordinarily stopping about the cuff or sleeve margin.

Other toxic conditions, as yet unidentified, may offer room for doubt occasionally. I recall a case with periodical attacks of salivation, with a slick, red tongue, and associated with a profuse diarrhea of the fermentative type, with a deep erythema upon the palms and flexor surfaces of the hands, extending up the lateral margins of the digits, with burning paresthesiae quite similar to the usual pellagrous eruption on the backs of the hands. Large numbers of yeast fungi were found in the stools of this particular patient, and a few years ago I presented her as a clinic before the Harris County Medical Society, at Houston, Tex., with a diagnosis of sprue. The case has since been widely examined throughout the United States and the diagnosis of sprue made by several of the army physicians and others, but with differing opinions in New York and Boston.

Again, a persisting or frequently recurring, slick, red tongue with salivation, with peristaltic unrest, gaseous dyspeptic symptoms, with or without diarrhea, and exhibiting mild nervous phenomena, such as restlessness, depression and insomnia, is nearly always ascribable to pellagra; and if the exceptions above noted are excluded, such a diagnosis may be made with considerable confidence, even though no cutaneous lesions are discoverable and no history of it can be elicited.

ATYPICAL CASES

If now we turn our attention to the second division, or the atypical cases, we enter upon more treacherous ground. Nevertheless, increasing knowledge of the disease warrants the tentative conviction that many, if not most, of these cases can be recognized if sufficient care is exercised to exclude other and somewhat similar diseases. As an illustration, I believe that pellagra presents in different cases a nervous-complex distinguished by the following predominating characteristics, which are sufficient to suspect the disease if not to diagnose it confidently.

1. *The Apprehensive.*—By this is meant those individuals who exhibit an indefinite, uncertain dread about themselves or the future, and who have no real reason to assign for their unpleasant emotions or sensations. Such persons carry a furrow in the brow and feel some impending calamity, although unable to explain it intelligently. Of course, the large class of psycho-neurasthenics, who have mental unrest, may be easily excluded here, because they are voluble in assigning reasons for their depressive emotions and are even more quickly responsive to any bodily sensation. The pellagrin with apparent unfounded apprehension has a tendency to cry without adequate cause and to explain that he just can not help it, as he feels so bad or the future looks so dark. Next, the depressive psychoses may be readily eliminated, as they usually find their depression dependent upon some sin of omission or commission, and they show also great mental reduction, more unstable hereditary history, and other personal evidences of a disturbed mental equilibrium.

2. *The Confusional.*—Such cases present a gamut of mental symptoms, ranging from simple perplexity in the conduct of their affairs, particularly in the care of children or household in females, and in the affairs of business and their personal habits in males, even to a more pronounced hypodelirium in which the patient is clearly unable to attend to ordinary affairs, and often passes to a more distracted state with symptoms simulating the manic depressive-complex, but running a shorter course to recovery or to fatality.

3. *The Comatose.*—It is possible that this and perhaps the foregoing may prove merely progressive forms of the first class, but some cases without previously recognized mental perplexity or distraction pass rapidly into a comatose condition, usually showing restlessness, jactitation, and later, involuntary evacuations of bladder and bowels, muttering delirium and subsultus tendinum, or a greatly exaggerated typhoid status, with death in a few days or weeks, or even may terminate in recovery. In

certain of these cases I have observed the coma associated with intermittent appearances of the red, slick tongue, with or without salivation, and an erythema of splotchy form, and have seen such patients definitely regain consciousness and health with substantially no doubt of the diagnosis.

4. *The Delusional.*—With or without revealing striking evidences of digestive and cutaneous disorder, certain cases of pellagra become dominated by delusional concepts, usually persecutory in character, often accompanied by hallucinations of sight and of hearing of a similar terrifying nature. For example, I have observed a Mexican woman with easily identified pellagra exhibited in all its classical symptoms, but only after the inauguration of the marked mental symptoms, consisting of delusions that a former husband was concealed under the bed, was trying to cut her throat and had already murdered her daughter, her son and her mother. Distressing hallucinations of hearing and of sight increased the agitation and resulted in frantic efforts at escape. It may be added that delusions are sometimes present, but are not given voice owing to the delirium or self-absorption of the patient. I have seen similar delusional and hallucinatory concepts in the insane and in alcoholics, but never quite the combination shown in pellagrins.

I do not wish to be understood as claiming that these four classes present such clinical pictures as assure their identification, but they are present so frequently with these predominating characteristics that with meagre support from other incriminating evidences of the disease, one may be safe in making the diagnosis.

Many symptoms, isolated and unsupported, are suggestive of pellagra and may afford much strong suspicion of the disease, and with combination of two or more systems may amount to certainty. Among these I suggest:

(a) Paresthesiae, particularly the burning sensations in the feet and sometimes in the hands, and not traceable to alcoholic or other ascribable neuritis.

(b) Indefinite pains in the region of the stomach and the back, unassociated with evidences of gall stones, hyperchlorhydria, gastric or duodenal ulcer, or appendicitis, and with peristaltic unrest, sometimes visible in those with thin abdomens and gaseous distention ,and possibly attacks of diarrhea, without any cutaneous lesion and few or no evidences in the nervous system.

(c) A strong tendency to lacrimation on slight occasion, and more or less uncontrollable.

(d) Loss of weight with any of these symptoms without other sufficient cause.

(e) A peculiar muddy pallor with an anxious look, difficult to describe, of the type of toxic pallor, not an anemia, and often associated with mental depression and muscular hypertension and exaggerated reflexes.

(f) The red, slick tongue, with or without salivation.

(g) Paraplegic symptoms, usually spastic but sometimes flaccid, though never so flaccid as in the hypotension of locomotor ataxia, of poliomyelitis or of multiple neuritis, and associated with gastro-intestinal evidences of pellagra.

Finally, it must be admitted that neither the mouth secretions, the blood, the spinal fluid, the gastric contents nor the stools have yet given any conclusive evidence of this disease. Until they, one or more, do give such evidence or some definite etiological agent is discovered, we shall be compelled to rely upon the clinical aspects of the disease for the diagnosis.

Editor's Note: Discussion of this paper follows the paper of Dr. Babcock.

TREATMENT OF PELLAGRA*

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In the words of another,[1] "I wish merely to recall here a few facts known to every Southern physician. I have not made a single discovery and my modest contribution is confined to a few elementary observations." When in our gropings to find the *cause* of pellagra we at least approach enlightenment, shall we not, perhaps, agree with Billod,[2] who declared in 1860 that "the cause of pellagra is complex and va-

*Read in Section on Medicine, Symposium on Pellagra, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

riable; it results from a combination of many hygienic conditions, of which the use of maize is one of the principal."

Of these complex and variable causes, in Italy and in the United States we now suspect that alcohol may be one. In time other causes may be affirmed: corn in Italy, Egypt, Roumania and the Southern states; oatmeal in the Northern states, Canada, England and Scotland; sugar in Panama; beefsteak in St. Louis; beans in New Mexico; bacon in South Carolina and oil in Atlanta, or whatever the monotonous dietary may be that fails to supply the ultimate vitamins or other elements necessary for the maintenance of nutritive equilibrium. The variability in the symptoms of pellagra in different localities and at different seasons in the same localities may be dependent upon this variety of unbalanced diets and upon their respective vitamins.*

After all that has been said upon this long-mooted and still unsolved problem of etiology, to my way of thinking the Italian word *pellagra* in essence connotes clinically with the English chronic starvation. Linked with these conditions we usually find physical exhaustion and in turn, following this, nervous exhaustion. As clinicians we, in our efforts to overcome the symptoms or efforts of pellagra, have to fight starvation in some of its expressions, more particularly in nervous exhaustion. And for the purposes of this paper by neurasthenia is meant a group of symptoms due to prolonged dietary deficiency, resulting in chronic fatigue, defective metabolism and vaso-motor irregularity, especially in persons predisposed by nerve weakness. In other words, in pellagrins we commonly find persons of inherited nerve weakness, subjected for a long period to deprivation of accessory food substances or vitamins of some form, leading to faulty metabolism, which interferes with nutrition and the internal secretions, and finally produces neurasthenia and pellagra.

Approaching the same problem from a somewhat different viewpoint Weir Mitchell[4] concluded: "Anemia gives rise to lessened power of self-control; this to emotional disturbances; and these in turn to loss of appetite, out of which, if the surroundings be favorable, come graver nutritive disorders and endless invalidism."

In 1771 Frapolli, the sponsor of pellagra, classified his cases under three heads: incipient, confirmed and desperate, "in order that the treatment may advance in an orderly manner." Upon this basis he concluded that the first class is most easily cured; the second, with more difficulty; and the third, or desperate, never. Thus Frapolli's classification carried with it also a prognostic element so far as results from treatment may be expected. Today we may or may not accept such attempts at classification as Frapolli's, but we must recognize that by our present methods while one vaunted medical treatment may seem to relieve one series of pellagra cases, the same method may prove useless in another series. And it is because of failure fully to apprehend the meaning of this prognostic conception of the disease that therapeusis, especially by drugs, is often disappointing in pellagra. Furthermore, the doubt entertained by life-long students of pellagra such as Friz, of Insago, Italy, as to the possibility of permanent cure in pellagra should not be entirely forgotten in our enthusiasm for successful results from our own pet methods of treatment. This prognostic way of looking at our pellagra cases should be cultivated, for they require oversight, advice and encouragement for a much longer time than through convalescence from a first attack.

With this prognostic idea in view we may advantageously and in a general way classify our pellagra cases by the period of life at which the attack begins: infancy, childhood, puberty and adolescence when it is often incipient, adult life and middle age when it is confirmed, and old age where it is especially desperate. Broadly speaking, then, the prognosis after infancy is distinctly more serious as life advances.

We should keep in mind, too, the idea

*In one of his latest studies on beriberi Vedder[3] expresses the opinion that the dry and wet forms of that disease are produced by different vitamins. Pellagra, too, has its dry and wet forms, which have, though the subject of much theorizing, hitherto remained unexplained. And as we now discontinue the use of alcohol in suspected ethylic cases, so we shall remove the other substances which we may ascertain to be the *causa causans* of the particular case of pellagra we are at the time investigating and treating, and substitute therefor foods containing the necessary vitamins. This, of course, will respond to the primary therapeutic law of removing the cause of the disease and thus relieving the patient.

of the usual presence of some expression of privation or starvation in pellagra which presents the symptoms of physical and nervous exhaustion. And it is toward these almost invariably present conditions of exhaustion that our therapy must be directed. I say "almost" because all pellagrologists have recognized the occasional occurrence of the well-nourished pellagrins, as did Weir Mithell the "fat" hysteric and neuresthenic. They seem to be the unexplained exceptions that prove the rule. Furthermore, the nervous if not physical exhaustion of these cases is usually a chronic condition and hence not to be suddenly or speedily overcome. The factor of time must be considered. Hence, we must submit that a chronic disorder like pellagra requires a chronic treatment. Pellagra, I am inclined to think, is, as stated above, like some other diseases,—typhoid fever, for example,—a less complicated pathological process in children than it is in adults, and much less so than it is in the aged. But even here this claim is not absolute and is subject to exceptions as regards prognosis.

Likewise, we must keep in mind the reciprocal relationships existing between pellagra and insanity, namely, that lunatics are especially prone to dvelop pellagra and that in individuals predisposed to insanity pellagra will most likely precipitate the psychosis to which the individual has a constitutional trend. Here, too, it is clear that a vicious circle is present. Whether or not an individual case of pellagra has a constitutional neurasthenic or psychotic trend depends, of course, upon his inherited make-up. But such cases occasionally in the young and practically in all adults present symptoms of neurasthenia of the minor or major variety. This is the important fact for general practitioners and need not conflict with any preference, predilection or complex one may entertain as to the etiology of pellagra.

It is cases congenitally predisposed to neurasthenia and the psychoses that do not so readily yield to treatment as far as the nervous disorder is concerned. Here the pellagrous poison lights up a slumbering fire and disaster is the result. We may by treatment clear up the objective or secondary symptoms of pellagra, but the nervous system seems to have been indelibly impressed by the unknown poison. In the South we are finding these hereditary pellagrins of at least the second generation, and this matter should always be inquired into when taking case histories, especially of pellagra.

It is these cases of congenital nerve weakness that develop various psychoses, including all degrees of symptomatic depression from the slightest attack of "the blues" to active suicidal tendencies.

Upon this broad conception of the intrinsic nature of pellagra we may establish our most intelligent and successful line of prognosis, management and treatment.

In the prognostic conception of the results of the treatment of pellagra we must not lose sight of the well-established fact that except in children pellagra is rarely a primary condition. It is in adults often secondary or associated with other diseases and conditions such as malaria, syphilis, uncinariasis and other intestinal infections, gynecological conditions, insanity, old age, etc. Of course, it is important to relieve, where possible, such of these conditions as are found present and have contributed to the development of pellagra. And it is equally important not to deceive ourselves by trying to cure chronic and incurable insanity and senile arterial disease associated with pellagra.

Accepting this conception of the underlying predisposing and exciting conditions of pellagra we must attack the resulting conditions by rest, elimination and nutrition.

While not denying the value of drugs for certain conditions in pellagra I beg to submit the opinion of Ballet[5] upon neurasthenia: "Without wishing," he states, "to abolish treatment by medicines, we venture to say that on the whole more harm than good has been done by drugs both to those threatened by neurasthenia and to those already attacked."

Admittedly such remedies are required for the secondary symptoms of pellagrous neurasthenia such as constipation and diarrhea, dyspepsia and insomnia, and applications for the local signs of the disease. But when we employ various measures and relieve these symptoms, we should not deceive ourselves into believing or claiming that we have cured the great underlying conditions of neurasthenia or the outspoken disorder, pellagra, or the

primary inherited trend. It is much more important when possible to remove the patient to a hospital and employ such measures as rest, isolation, diet, baths and elimination, open air treatment but without exposure to the sun and such psychotherapy as the individual physician is willing and able to apply.

When, as in many instances, home treatment must be undertaken, patients and their friends should be made fully to understand the greater limitations and disadvantages of such an undertaking so that they may the more intelligently lend that full co-operation without which successful treatment at home is often well-nigh impossible.

As to the details of these methods the time allotted does not permit me to enter into them, nor is it necessary before this Association. It is by these hygienic measures of rest, diet, hydrotherapy, etc., however, I think I may claim that most of the good results in the treatment of pellagra have been achieved and relief and even restoration to health secured in cases seemingly hopeless. Practically, one of the greatest drawbacks both at home and in hospitals is to be found in securing the acquiescence and co-operation of both patients and their friends because of the length of the time required, namely, weeks and months and not days. Because of the claims of too optimistic physicians based upon limited experience with Frapolli's "incipient cases," the laity have been misled and the general practitioner is now expected to perform miracles in "hopeless" pellagrins by the aid of drugs alone. Requests are frequently made for medical treatment by mail for unknown patients, a system probably originating from the advertising quackery notoriously prevalent in many states. As in other forms of nervous exhaustion, fat seems to be the real antidote for pellagrous neurasthenia, and upon steadily increasing weight and constipation in our pellagra patients we may often hazard a favorable prognosis.*

On the prognostic side of the problem it must be remembered that the typhoid, senile, atrophic and some other forms of pellagra have a serious outlook that as yet is not easily modified by any treatment. In these cases it is probable that the exhaustion has developed into a degeneration.

While the several text-books we have on pellagra distinctly mention nervous exhaustion as a common symptom in the diseases and although they recommend separately the several methods herein advocated, they do not make the omnipresent neurasthenia the central nor rallying point of the attack toward which our greatest and constant efforts should be concentrated both as a means of relief as well as a means of preventing relapses in pellagra. This, as must be evident, is the whole crux of my paper.

CONCLUSIONS

1. The old Italian word *pellagra* connotes clinically with the English chronic starvation.

2. With the mystery of the causes of pellagra still unsolved, we must as clinicians direct our treatment toward this commonly intrinsic and persistent condition,—neurasthenia.

3. The resulting nervous exhaustion is the great fundamental condition of pellagra.

4. Instead of classifying the eruption as cutaneous, digestive and nervous, the order should be reversed and we should regard pellagra as a general disease presenting nervous, digestive and cutaneous symptoms; that is, if we must continue to make such a subdivision.

5. Upon this physical and nervous basis we may find developed according to inherited trends various neuroses and psychoses.

6. The well-known insusceptibility of children to neurasthenia explains their comparative freedom from the severe types of pellagra. Hence they do not usually require the rest-cure.

7. In adults, however, our main therapeutic endeavor should therefore be toward overcoming the underlying conditions, that is, toward treating the fundamental neurasthenia. With its relief other symptoms also will improve.

8. There is no specific medical treatment for the pellagrous neurasthenia or the other manifestations of the accumulated products of the pellagrous poison in the system.

9. These conditions, usually chronic, require a chronic management and treat-

*The cacodylate of soda has been reported to be one of the specifics for pellagra. In his clinic yesterday Dr. Barker called especial attention to this drug as a recognized aid to the rest cure in securing fat for underweight patients.

ment. This should always be fully explained to the patients and to their friends.

10. During convalescences and after seeming restoration to health by continuing treatment against nervous exhaustion relapses may be prevented.

11. The line of treatment here recommended is embraced in the original, unmodified Weir Mitchell method of isolation, prolonged rest in bed, elimination, nutrition, hydrotherapy and the other hygienic methods laid down by Dr. Mitchell. This line of treatment should be instituted as soon as pellagra is suspected and records kept of weight and blood contents, the object being "fat and blood."

12. Whenever possible, pellagra patients should have a complete change from their customary diet and environment.

13. When pellagra is associated with incurable insanity and the various concomitants of old age, we may sometimes relieve the objective symptoms by the recognized methods of treatment, but we should not mislead ourselves and our clients by expecting to cure dementia or remove the effects of arterio-sclerosis and allied conditions or to cure the incurable.

14. Curable pellagrins by virtue of their nervous trends are especially susceptible to suggestion and it is a wise physician who recognizes this and uses such psychotherapeutic measures as commend themselves to his common sense.

15. The symptomatic and local treatment of the various pellagrous symptoms have been successfully worked out by Southern clinicians in the last eight years and are therefore too well known to the members of this Association to be repeated here.

Finally, as I began so I conclude with a quotation: "A new era will dawn upon medicine when its faithful and enlightened cultivators shall more constantly devote their time and their efforts to enlighten the public mind in regard to the true mission and power of their service, and when they shall leave to charlatans and fanatics the doubtful and dishonest game of unfounded professional pretention."[6]

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Editor's Note: The two preceding papers complete the publication of the papers in the Symposium on Pellagra. The other two papers, "The Transmissibility of Pellagra; Experimental Attempts at Transmission to the Human Subject," by Dr. Joseph Goldberger, Washington, D. C., and "The Pellagrous Intestine and Some of Its Parasites," by Dr. Kenneth M. Lynch, Charleston, S. C., read in this Symposium, were published in April issue. The discussion of the Symposium follows.

DISCUSSION SYMPOSIUM ON PELLAGRA

Papers of Drs. Goldberger, Lynch, Graves, and Babcock

Dr. J. F. Yarbrough, Columbia, Ala.—I accord to Dr. Goldberger sincerity of purpose in all the work he has done; however, I regard his diet theory in the treatment of the disease as particularly unfortunate, and, coupled with his challenge to the profession to show that any drug or other remedies of benefit in the treatment of pellagra, is, to my mind, nothing short of calamity. Because, in the wake of this teaching there are many desolate homes, and the wail of the orphan is heard mourning for mothers that are no more. Dr. Seale Harris, in a paper read before the Texas Medical Association of last year, said in substance: "The opinion which is becoming prevalent that all cases of pellagra will get well on diet alone is, in my opinion, doing harm, because I know of no disease or condition that requires more careful treatment than that of pellagra. Indeed, the results depend upon the attention to details in the management of the patient." I heartily concur with Dr. Harris in this opinion.

In no disease with which I am acquainted are there so many complications as in pellagra. In fact, there are very few who escape some sort of complication. A large per cent. of our patients show serious nephritic lesions, and a vast majority exhibit mental derangement of serious import. Many are admitted in a precarious condition who have no complications and an immediate transfusion of blood or normal salt solution is imperative if life is to be preserved. Yet, Dr. Goldberger would have you believe that transfusion of blood or normal salt solution would be of no benefit in this condition. Would you be satisfied to prescribe peas and "pot liquor" for these patients? The results of such prescribing has filled our asylums to overflowing and a vast number are wearing crowns of immortal glory. No, gentlemen, these patients need close personal attention to details and every therapeutic means at our command should be employed if recovery is to be expected. I would not minimize the value of diet in the treatment of pellagra, but I earnestly insist that you incorporate with the diet sound judgment. Use such drug or drugs, or other means, as is indicated in each individual

case. The advice to discard all drugs and other means other than diet has cast a pall of gloom over our fair Southland and our cemeteries are blooming as do fields of grain after beneficent summer showers.

I appeal to you, gentlemen, to treat these patients with every ounce of scientific knowledge at your command, and not as simple culinary experts. You are confronted by a serious condition, not a theory; a conditions that demands your serious consideration; because Dr. Goldberger, being a physician of national reputation with the United States Public Health Service behind him, is naturally looked to for guidance in the treatment of this disease, and thousands of physicians all over the South are following his teachings implicitly, crucifying their patients upon a cross of error.

Gentlemen, again I appeal to you to bring the vast wealth of your scientific knowledge to bear upon this vital question and dissipate this error before more serious damage has been done.

Dr. H. F. Harris, Atlanta, Ga.—I am very glad indeed Dr. Goldberger has confirmed by his experiments the work that was done long ago in the line of an attempt to find out as to whether or not pellagra was a contagious disease. All earlier clinicians, including Strombo and others, the best earlier writers on the subject, very strongly took the ground against the idea that the disease had any contagious element. The discussion having become rather acute at about the beginning of the last century, a very well known Italian investigator undertook to determine this matter by inoculation in animals and in human beings subsequently. He wrote a series of papers between 1805 and 1808. At a subsequent period these experiments were repeated, the records of these experiments being the "Report of the Piedmont Pellagra Commission of 1847." This work of Dr. Goldberger confirms the work of these men, and I am very glad to see it come at this time, but there seems to be a disposition on the part of some still to think that possibly pellagra is a disease that is inoculable. Of course, against this view is the fact that nothing in the way of a parasite has ever been, in reality, demonstrated, although Tizzoni is making loud claims, and has written numerous monographs on the subject, that he has discovered a polymorphic bacillus that produces the different forms of pellagra. The germ theory accommodated itself to the grown adult or to the child, developing equally in its morphology, depending upon whether a baby is attacked or an adult.

I note with a good deal of interest the paper of the essayist who spoke apparently of lesions produced by infection in the intestine in this disease. I would say in this connection that the idea that the intestines were at the basis of pellagrous processes is very old, indeed. The first big monograph ever written on the subject of the pathology of the infection was by Albos, in 1847, who advocated in his book that the intestine was the seat of the disease, although he rather thought the essential change was altogether within the muscular walls of the upper part of the small intestine. Subsequently this work was carried on by a number of investigators with, I think, complete failure to verify the earlier claims of Albos. In none of the works that have appeared, some of them quite extensive, in recent years, have we any one who has heretofore observed that there were anything like constant lesions in the intestines, and I have failed to observe anything of the kind myself. I am inclined to believe that the probabilities are it is only in rather exceptional cases that we find anything like constant lesions in the intestine.

Dr. James A. Hayne, Columbia, S. C.—I would like to say I am still like Galileo when he was condemned by the Italians. He said: *"E pur si nuove."* "For all that it does move." I am as absolutely convinced as I was many years ago of the communicability of this disease, but let us leave that aside as a settled point in my mind which has not yet been controverted by any evidence brought to bear upon it. If infantile paralysis is a communicable disease, then pellagra has certainly just as much evidence of communicability as infantile paralysis. We never get a case of infantile paralysis in the same family, rarely, if ever. We may have one or two people in a room with infantile paralysis. It rarely develops in a house adjacent. Nurses and doctors do not take it.

I want to discuss briefly the prevention of the disease, but as I have only five minutes, I can not go into the reasons why the South, blessed as it is with fertile soil, a delightful climate, food supply in the greatest abundance everywhere—why this country should be cursed with a disease due to insufficiency of diet; whereas the Roumanians, Serbians, Germans, English and French are all now suffering from a rather scarce diet, especially the Roumanians, and we have no reports of large epidemics of pellagra among the peoples of these countries. But as to the prevention of pellagra, it seems to me that we ought to teach the people how to live hygienically, to have good water, to have their surroundings taken care of, to have the waste taken care of, to have their houses comfortably built, to have the best diet and the greatest variety. All these things I would advocate. Therefore, in any propaganda for the prevention of pellagra, I am with them heart and soul, for those are the things I want to see in our Southland, and if those things will prevent pellagra, they will prevent a great many other things besides pellagra. They will prevent tuberculosis. Also diet will cure tuberculosis, coupled with rest and hygienic surroundings, and it will cure pellagra provided it is as intelligently treated as you would treat any other disease. I do not believe that because a person has pellagra you can put him or her to bed and feed them and pay no attention to other symptoms; but I do believe the main factor in getting a patient well of pellagra is to give him a diet he can digest, properly balanced, and that he will usually under these circumstances get well, but he does not always do it. Even in the hospitals that are largely maintained for the treatment of patients with pellagra with a well balanced diet we have quite a series of deaths occurring. I can not understand it unless the patients do not take the diet which is provided for them. I would say further they do not admit to these hospitals patients who have anything else but pellagra. The card you make out to admit a patient requires the most thorough examination and excludes every other disease—kidney disease and

lung disease, all except pellagrous lesions. Patients with pellagra do not get well with an absolutely regulated diet which they get. This would seem to me rather to disprove the absolute cure of pellagra by diet alone.

I took the trouble this year to find out whether pellagra is increasing or decreasing in the Southern states. It is decreasing most markedly in my State. We had 1,400 deaths up 'till the first of November, 1915. Up 'till the first of November, 1916, we had 800 deaths. It is encouraging to know that the Southland, which is so increasing in prosperity, has all of the things I have mentioned necessary to prevent and stamp out pellagra, and that we have cut it down in one year to one-half.

Dr. J. Clarence Johnson, Atlanta, Ga.—It is not within my province to say what I think of pellagra, but I hope I may be excused for quoting a statement published in 1911 on my first observations on pellagra, viz: that it is distinctly a disease of perverted metabolism, having its first expression in the alimentary tract. The fact is I have never seen a case of pellagra in which a gastrointestinal disorder was not present. I have never seen many cases in which there was not a definite history of indigestion before pellagra developed. The gastrointestinal symptoms are the only ones which have always been present in pellagra. It is reasonable to conclude that when a condition is always present in a disease, it is either a part, cause or product of that disease. It is likewise as logical to conclude that if there is a condition or a symptom ever present, but not always present, it is neither the cause, essential nor product of that disease. Nutrition is a secondary process and always follows something else. Therefore, it can not be a primary cause of anything. That is a biologic and physiologic fact upon which the very faith of our medical progress is based and we can not get behind it.

In every disease there are two essentials, and no disease has ever occurred without it. One is a condition and the other is a cause. If that were not true, everybody exposed to tubercle bacilli would have tuberculosis; everybody exposed to typhoid fever would have it. In fact, every individual would have every disease with which they came in contact. That is another scientific fact we can not get behind. So much for the explanation of my first remark.

I shall discuss the paper of Dr. Lynch briefly by selection. My experience in that line of work has been more limited than his. I have never found any bacterium always present in pellagra, either in the intestines or elsewhere. I was particularly attracted by his tabulation of the bacteria he found in the colon, and I hope as a duty to the profession he will pursue his study and prove either that they are not always present or always present. I am likewise not able to point out any inconsistency in his findings, because the cause does not appear in the product.

I believe that he sounded a very important note when he mentioned the possibility of the fact that one native bacterium of the intestine may under abnormal conditions lose its zymogenic properties and become a pathogenic bacterium. That is a possibility which we have to pass for further study in relation to the pathology and etiology of pellagra.

His report of the morbid findings was very interesting. I have never gone to any extent into that line of work, and therefore can not speak with any interest or authority in that direction.

I want to express my appreciation of all of these papers that have been read, and what I have said should not be considered in the nature of a criticism, but as my comprehension of the scientific truth.

Dr. John G. DuPuis, Lemon City, Fla.—I shall briefly refer to the etiology of pellagra. Is pellagra a disease? Let us stop and ask ourselves that question. I do not believe it is a disease, and if I were to be dogmatic, I should say it is not a disease but a condition or symptom complex. We may take a condition in which there are multiple symptoms and refer them back to a condition in which the tissues are starved, or to an actual condition which produces starvation of tissues. If we will take the condition of starved tissues and bring them in contact with infections, we have there what I determine as pellagra. We have in rheumatism a something, but we do not know what. We have in autotoxemia another problem that we had better not have in our medical nomenclature. I believe that pellagra is a preventable condition, and I do believe it is largely due to diet, and in its treatment and prevention we should study economic factors in the large districts in which it is prevalent. It is more widespread in certain places in the Southern states. But it is also found elsewhere. For instance, I have had one case from the State of Ohio and one from Chicago. These patients were not poor people, but you can starve tissues more than one way than by lack of diet. What do we see in the South? We see children brought up who are very anemic and have hookworm disease. If we were to look more into the economic factors and try to better the conditions of the people, some of these conditions would soon be mere relics on paper. Pellagra occurs in homes under unhygienic conditions and where there is a routine diet or a diet that is one-sided, and I believe it can be prevented by improving economic conditions if we will associate ourselves as students more closely with the conditions of the people whom we serve.

Dr. E. C. Thrash, Atlanta, Ga.—I want to speak especially of the observations I have made in a study of the pathologic structures of pellagrins. I doubt if any of the tissues of the body are ordinarily affected as in infections. My observation has been that there is a general letting down of every cell of the body. The simple fact that manifestations of the disease appear prominently upon the hands or exposed parts of the body does not mean that these parts are affected more particularly than others. Nature provides pigment deposits in the skin for the protection of its cell structure. If these cells become weakened, more pigment is needed, and that is the reason the darkened condition and the scaly eruption appears, and it is for protective purposes. This darkening of the skin is simply to protect the exposed area, and if any other portion of the body, or any of the cells wherever they may be in the body, were exposed they would suffer the

same destructive changes unless protected in some way. The nerve cells are more particularly affected. There may be vacuolization and cloudy swelling of all parenchyma cells. The vacuolization of the nerve cells is noted in the far-advanced cases of pellagra. The kidneys, the heart, the liver, the spleen, are all in a state of cloudy swelling. It is not different from the same condition that may be brought about from toxemia. A poison does it, but whether this poison is due to some perversion of metabolism or is of exogenous origin we do not know.

I beg to differ from Dr. Johnson in reference to the disease's being chiefly an affection of the intestines. I do not believe that the intestines are any more affected than the cells of the brain or other organs. I have observed cases where there was no evidence of any disturbance of the alimentary tract in pellagrins. The alimentary tract becomes disturbed because the cells can not carry on their normal function and diarrhea is the result. This diarrhea may be compensatory, as it is thought by some. Whether it is or not, no cell can do its duty if it is crippled by starvation, toxemia or any other poison. We get this weakening of the cell structures in scurvy or even in feeding patients continuously on polished rice.

There are a number of diseases analogous to pellagra. It does not stand out alone as being a disease of diet or lack of a properly balanced diet.

I rise simply to say that regardless of whatever may cause it, unlike most other diseases there are no specific organs that are affected in pellagra. In bacterial infections of all kinds we do not get every cell of the body equally affected, but bacteria will have a predilection for certain areas and those areas are dominant in the affection or disease. Pellagra is different.

Dr. Douglas VanderHoof, Richmond, Va.—Shortly after we began to recognize the existence of pellagra in Virginia, three features of the disease attracted our attention which have been emphasized by those who have been able to study a larger series of cases. The first feature was that pellagra appeared to be essentially a secondary disease; in other words, a condition engrafted upon another malady. We saw it in cases of chronic alcoholism, complicating syphilis and other infections, but especially as a late result of certain chronic gastric disorders.

The second feature that impressed us was the fact that pellagra was particularly liable to occur in individuals who had been on a monotonous diet. Time and again have we seen the disease develop in the patient with chronic appendicitis, or a diseased gall bladder or some other abdominal condition, who had limited his diet to tea and crackers or made other ill-advised restrictions in the attempt to relieve his abdominal distress.

A third feature, which has not been emphasized this afternoon, is the frequent association of chronic pellagra with a stomach condition characterized by the absence of gastric juice. The occurrence of gastric anacidity, or achylia gastrica, in cases of pellagra certainly should be dwelt upon because in many instances it has a very definite bearing upon the treatment.

I am firmly convinced from our experience with pellagra that Dr. Goldberger is absolutely correct. There can be no question about it; the more we study the disease, the more we are disposed to agree with him. He does not maintain, however, that diet is the only factor in pellagra.

The first gentleman who opened the discussion spoke of the many complications of pellagra. I do not think pellagra has many complications. The complications that we see are those of the underlying disease.

In the treatment of pellagra the essential thing, in addition to the diet, is to try to cure the primary or underlying disease. The second thing is to attempt to ameliorate some of the symptoms, and the one drug that helps me more in pellagra than anything else is hydrochloric acid. Stomatitis and diarrhea are features not only of pellagra, but occur in many cases of achylia gastrica. When I speak of the use of hydrochloric acid I do not mean the ordinary dose of 10 or 15 minims. I mean one dram in a full glass of water after meals, repeated a half hour later if necessary. It is often astonishing to watch the stomatitis and diarrhea disappear after the administration of full doses of hydrochloric acid.

One other valuable adjuvant is the use of orthoform in lozenges for the relief of the stomatitis. These lozenges, as marketed, contain one grain of orthoform, and can be administered once every two hours.

Dr. E. H. Martin, Hot Springs, Ark.—For more than 200 years this disease was endemic in certain European countries, but previous to the last ten years did not trouble us. It spread from Italy and Spain into other European countries, but did not come to America, where there was the ocean intervening. Before pellagra was brought to Panama and then to the United States we did not know what it was, and it is only seven years since there was enough pellagra in South Carolina to cause the meeting of the first pellagra conference, and at that time we had never heard of it in Arkansas. It spread gradually west just as the boll weevil came up into Texas and spread east; and you might as well ask me to believe that the boll weevil is not alive as to ask me to believe that pellagra is not caused by a living organism.

It so happened that when this disease first came under my observation I began treating it with arsenical preparations as others did and I found enough specific effect from several arsenical preparations to prove to me that I was dealing with an organism and was having a specific effect upon it. This was before the diet theory was offered.

In 1912, I heard Dr. Deeks, of the Canal Zone, read a paper at Columbia, S. C.; in which he did not say the patient with pellagra was suffering from an unbalanced diet but from fermentation of carbohydrates. He gave a carbohydrate free diet which left the same nitrogenous diet which Dr. Goldberger has offered as being well-balanced and as a cure for the disease. Dr. Deeks was of the opinion that he cured pellagra by diet. I adopted the Deeks diet and still use it in connection with specific treatment.

Dr. Dyer, of New Orleans, has cured a series of cases by the use of quinin hydrobromate. I

have not had success with that remedy, but in controlling the neuritis and burning sensations which accompany these cases with quinin intravenously administered has been very useful.

If we will just leave out the chapter about etiology entirely and take in diet, quinin and the arsenical preparations, we will cure all of our cases if they live long enough.

As to the method of transmission of this disease, I have no theories. We used to believe very absurd things about the cause of malaria; and the public health services of different countries have burnt up millions of dollars' worth of clothing, etc., to prevent the spread of yellow fever. Now we know better. It is surprising how much we can talk when we know nothing about what we are talking about. I think it is perfectly useless to discuss this phase of the subject, for when the day comes when some one discovers the real cause of pellagra there will be very little to say.

The crusade which the Public Health Service has made has done a wonderful amount of good. With teaching better living and with its hookworm crusade it has reduced the number of cases of pellagra more than 50 % in my opinion.

I must differ from Dr. Babcock in stating that alcoholism is a cause of pellagra. Ninety per cent. of these patients have not had a drink of alcoholic liquors for years.

Dr. Randolph Lyons, New Orleans, La.—I think that the volunteers experimented upon by Dr. Goldberger should be awarded gold medals. These experiments are convincing, although I can not say I am yet willing to give up the opinion that there is another factor besides that of diet. I hope next year that Dr. Goldberger will give us another report on these volunteers to let us know whether or not they are still free from the disease. While I have nothing to prove there is any other factor than diet, it is certainly hard to get away from that proposition. There is no doubt that the proper kind of diet has been of the greatest help in the treatment of the disease. I am sure Dr. Goldberger does not mean that we should not use anything else in the treatment of our pellagrous patients. When symptoms arise they should be treated. When an investigator is experimenting with a series of patients he has to limit himself to one form of treatment, otherwise his experiments would be vitiated. If he used drugs with diet he could not tell what was the cause of the patients' improvement. As physicians we do the best we can for our patients, and if diet is one of the main things we use that. If we can benefit symptoms as they arise by medication or other measures we do that. I personally believe that good air and an avoidance of sunlight is very important. A change of climate on the part of those who can do so from the South to the North or to the West, where the disease is not prevalent, will often effect a cure. I have used, as other men have, a great variety of medicines. I have used many forms of arsenic, including Dr. Martin's favorite. I have also used for years quinin hydrobromate, but with no particular good that I could see. In the last year or two in the Charity Hospital it has been used less frequently. I have never seen any specific effect from the use of arsenic. It does help the anemia and tones these patients up, but I can not see any specific action in it.

I would like to say one thing about the paper read by Dr. Lynch, which was interesting to me. I am not a pathologist, but I have followed many cases of pellagra to the autopsy table, and it has been a common finding in New Orleans to find intestinal lesions such as he describes in the majority of cases.

Dr. John A. Witherspoon, Nashville, Tenn.—Dr. Goldberger has never claimed, to my knowledge, many of the things that have been stated. He has simply brought out facts as he observed them by a scientific process through the workings of a scientific mind. Therefore, I think we owe him a debt of thanks. The mortality from the dietetic treatment of pellagra has improved wonderfully. There is no doubt about it, and for this we are largely indebted to Dr. Goldberger. I only hope he will go on with his investigations and possibly there may develop in the future something from them.

In a survey of this question in Nashville, Tenn., by Dr. Jobling, a careful observer and hard worker, he found a very remarkable thing. He found out several thousand cases had occurred in one of our sections of the City, especially where the sanitation was bad, where the sewerage was defective, where the drinking water was polluted, etc. He found another remarkable thing, namely, it was very rare that he would find a case developing that could not be traced to some other case or, at least, lived in the house where a patient had lived or died. I am frank to tell you that I do not know what such investigations will bring forth, but in that survey one could not help feeling that there was a connecting link in some way between the cases occurring and almost every case following in connection with that survey. This question is still open, and I do think, so far as investigation has gone, Dr. Goldberger has given us our best knowledge on the subject, and I for one feel grateful to him. I feel, and the American people believe, that there may be something else than diet, but Dr. Goldberger has a scientific mind which is just as open to conviction as is ours.

Dr. Robert B. James, Danville, Va.—With reference to improving the economic conditions in the South with a view to getting rid of pellagra as suggested by the gentleman preceding me, I have no doubt it will help to get rid of many diseases, but when we remember the sad economic condition of the South for fifteen years after the war, which failed to produce pellagra, and the much improved conditions for the last fifteen years with the advent of pellagra, I am afraid his expectations will not be realized as regards this disease. For many years after the war the poor people of the South lived on a vegetable diet almost exclusively. Molasses and corn bread and pokeberry salad were generally in evidence at all meals, with little or no meat, and yet no pellagra appeared. All the arguments in favor of diet and poor sanitation causing pellagra will apply just as well to consumption. Improve your diet and sanitation and you increase resistance to all diseases, but without the tubercule bacillus there is no tuberculosis, and without the malarial

plasmodium no malaria, and without the tetanus bacillus no lockjaw.

The same is true of diphtheria, typhoid fever, erysipelas and so on. Then why revert to the state of knowledge that prevailed forty years ago and say that pellagra comes from bad food? As we used to say malaria came from bad air, and that consumption came from our forefathers.

From reports there must be two kinds of pellagra. One can be cured by proper diet and therefore it may not be illogical to say it was caused by improper diet. The other and the only kind I have ever seen can not be cured by diet. I have never seen a case of pellagra cured by diet, for most often they can digest nothing, but I have seen case after case cured by salvarsan and neosalvarsan, which convinced me that there is a specific cause, though as yet unknown, of pellagra as of other similar diseases.

Dr. E. Mack Parrish, Dallas, Tex.—Dr. Goldberger's experiment fails, in my opinion, to test the transmissibility of pellagra. For this reason his conclusion that pellagra is not transmissible is unacceptable. His work may prove, and probably does prove, that pellagra is not directly transmissible from person to person, but this has not been claimed in recent times by any authority I have read. It is believed by many investigators that pellagra must be an infection which is transmissible by intermediate carriers only; such an infection as would require a cycle of development outside the human host. It must be plain to many that Dr. Goldberger's conclsion is not justified, and that his experiment is incomplete, if it is conceivable that pellagra is indirectly transmissible.

Let me remind you for a moment that uncinariasis is not directly transmissible and yet human excreta plays a most important part in its transmission. Feeding human excreta as Dr. Goldberger has done would never transmit hookworm disease, and his experiments would be of no value for proof that such a disease is not transmissible. Encysted embryos are required for the transmission of uncinariasis and these are not ordinarily found in the blood, in the stools or in any of the body secretions. As you know, they are found in polluted soil; they penetrate the skin from dirt; and about seven weeks are required for their full development after they reach this stage. My study of pellagra convinces me that it is transmissible and probably in some such way as this. Dr. Goldberger's work is valuable as far as it goes, but in my opinion it would be most unfortunate to discourage further search or to conclude from his report that pellagra is not transmissible. It seems certain to me if it is possible for hookworm larva to pass through the skin in thirty seconds from infected soil, and later cause hookworm disease, it is conceivable for another disease to originate and spread the same way. Evidence is accumulating that more than one disease originates in this way from polluted soil and we may see that pellagra is one in this group.

I saw a pellagra patient treated with thymol in 1910. That patient had hookworm, too, but the pellagra symptoms disappeared. My brother commenced to give thymol for pellagra and I was skeptical. After the most astonishing results had followed thymol administration for pellagra in his practice with a great many patients, at the end of three years I was still skeptical and set about to find his mistake. As I studied his cases and new cases in my own practice, my skepticism slowly passed away. When Dr. Goldberger's announcement came, in 1914, I said we would try giving thymol without any change in the diet and we did, except as needed for fasting. We even fed patients nothing but buttermilk for several weeks at a time, giving thymol every week, and the vast majority of these patients showed immediate and continuous improvement and complete recovery from the attack.

We hope to present our data at a future meeting. We are now giving all of our time to this study and we expect to present evidence when our results can be better established and defined. Evidence is accumulating that the open privy is the vital factor in the spread of pellagra, and that diet plays only an important part in exciting and arresting an attack. I think we must learn to distinguish in pellagra between the period of activity as represented by an attack and the period of latency as represented by the period between attacks.

Dr. W. F. Smith, Little Rock, Ark.—As to the etiology and communicability of pellagra, I know nothing whatever about it and I leave that to the investigators, and all I wish to say is that my experience with the disease has been rather limited, but for the past two years I have been following up Dr. Goldberger's dietary treatment and the results have been such that a continuation of that treatment seems justifiable.

Dr. Benjamin Otis Whitten, Columbia, S. C.—It is not my purpose to discuss the cause nor transmissibility of pellagra. I only want to lay a little more stress upon one point in connection with pellagra which others, besides Dr. Babcock, are leaving out. I think a great many of the cases should be followed up to see the condition of the mind. What are you going to do about the patient's mental condition after subsidence of physical signs? For months afterward a patient may be ever so robust and strong and with simple mental tests one may find that he is very deficient mentally,—some more than others.

Of course, we try dietetic treatment, and occasionally medicinal treatment. Those of us who work in a state hospital can appreciate more fully the ill effects of pellagra on the mind.

One can not help being impressed with some of the work that Dr. Goldberger has been doing. He instituted his form of treatment at the Epworth Orphanage in Columbia, where little children have been greatly benefited. You could go to this orphanage now and it would be almost impossible for you to make a diagnosis of a case of pellagra there. I want to say one thing more, and that is about the effects of sunshine. In my opinion, sunshine during the summer months is detrimental to patients with pellagra and it undoubtedly has a very bad effect upon some of them. I have taken patients from the inside and put them out repeatedly, and, it seems to me, that they can not stand the warm or hot rays of the sun.

As to the infected alimentary tract, Dr. Lynch has certainly brought out some good points with

reference to it. I have been following it, to some extent, and have found parasites in the intestinal tract of a good many pellagrins. I can not speak with reference to the pathology of the alimentary tract in this disease.

Dr. A. E. Conter, Chattahoochee, Fla.—I believe in the dietetic treatment of pellagra not because I desire to be an apologist for Dr. Goldberger, but because it has been my experience that in the institution where I am working we have had better results and a lower mortality as a result of that treatment than from anything that we have heretofore tried. Notwithstanding the wisdom that has emanated from Columbia, Ala., I can not agree with all that has been said from that quarter.

I think it is very unfortunate that one should come here and read a paper as able as the one presented by Dr. Goldberger and then have it received in such a manner.

Dr. George C. Mizell, Atlanta, Ga.—Any one who has seen a large number of cases of pellagra, and studied them and followed them up, can not get away from the effects of diet in the treatment of pellagra. Since 1911 I have been keeping up with all my cases of pellagra, about 200 in number, that I have been able to keep in touch with and bring the condition of these patients down to date. I have kept an accurate record of all of these cases, and I can say to you that those cases are not having recurrences and have not had a recurrence in several years, and the only change that was made was a change in diet. The patients are living in the same locality and in the same homes to a great extent. Furthermore, two orphanages (the one located in Atlanta in 1911 had between 30 and 35 cases of pellagra) have not had a new case of the disease develop since 1911. There were two recurrences in 1912 and 1 in 1913. In Macon there is a hospital in which they had a large number of cases of pellagra in 1910 and 1911 and years before, but in which there has not been a pellagra case since then except among children who have been brought into the institution and the disease became apparent after they had been in the institution a month or two.

I am glad some one has mentioned the effects of sunshine in pellagra. To me, the deleterious effects of sunshine in pellagra should be recognized because the improvement of the patient goes along with the dietetic treatment. Whatever the cause of pellagra may be, it is a sensitive subject to many people, and in addition to diet it appears to me that sunshine does exert a very deleterious effect.

Dr. J. F. Yarbrough, Columbia, Ala.—I rise to a point of personal privilege. The very unpleasant charge of having been discourteous to Dr. Goldberger has been lodged against me. I challenge the gentleman to point to a single sentence in my remarks that could, by the wildest stretch of imagination, be construed into a personality. The attack was made wholly on Dr. Goldberger's diet theory in the treatment of pellagra,—*not on the man.* In my remarks I stated that Dr. Goldberger had said that no drug or other remedy other than diet was of benefit in the treatment of pellagra.

In this symposium more than one gentleman has charged me with misrepresenting Dr. Goldberger in the above statement. They say that Dr. Goldberger is a man of too broad culture; that his scientific attainments are of such high order that he could not, and did not, make such a statement. I wish to call the attention of these gentlemen to a paragraph in an article published by Dr. Goldberger in the *Journal of the American Medical Association,* February 12, 1916: "Hereafter the clinician who would attribute therapeutic value to any drug or other remedy in the treatment of pellagra should be prepared to show, what has not heretofore been done, that the curative effect claimed can not be attributed to the diet."

If this does not exclude the transfusion of blood, normal salt solution and all drugs in the treatment of pellagra, tell me why.

Dr. Jos. Goldberger (closing).—The mere statement of one's belief in this, that or the other thing in connection with pellagra may be described as a sort of confession of faith, and I want to say that, in my judgment, a confession of faith is not debatable. Therefore, if I do not refer to the remarks of some of the gentlemen who have spoken, please understand that it is because I do not propose to debate a confession of faith. However, I feel obliged to make some exceptions. One of these is my friend, Dr. Hayne, who well represents those who delight in confessing their faith with respect to one or another aspect of this interesting, perplexing and important problem. He persists in misunderstanding the word "deficient." I feel certain that Dr. Hayne knows, or should know, the meaning of "deficient," but I have gained the impression that for reasons best known to himself, probably as an attempt at humor, he persists in speaking as if it were synonymous with insufficient. As you know, and as I don't doubt that he knows, there is a vast deal of difference between an insufficient diet and a "deficient" diet. The former refers to a simple quantitative inadequacy in bulk or calories, whereas the latter has in recent years acquired a special technical restricted meaning. Nor can the other of Dr. Hayne's remarks be taken any more seriously, for I am certain that he very well knows that the Public Health Service has at no time stated or claimed that all cases of pellagra, without regard to the stage of the disease, are curable.

As Dr. Yarbrough has correctly quoted, I want to repeat that, when any one advocates a remedy for the treatment or cure of pellagra, before admitting his claim he must show that it is not the diet that is to be credited with the favorable results.

As for Dr. Martin's remarks, comment seems unnecessary except to say that I thoroughly agree with him in his statement, which I will quote in his own words, namely, "It is surprising how much we can talk when we know nothing about what we talk."

I am sorry Dr. Witherspoon has left. I would like to express my personal appreciation of his very kind commendation of our work. He cited the work of Dr. Jobling and his associates. I want to say that I am thoroughly familiar with that work, although I made no specific reference to it in my paper.

In view of Dr. Witherspoon's citation, however, specific comment would seem to be called for. On account of the limitation of time I shall content myself with saying that the Nashville Commission's report does not bear critical analysis and, in my judgment, is without serious significance.

Dr. Kenneth M. Lynch (closing.)—I am very sorry that Dr. Jobling was not able to be present to discuss the Symposium on Pellagra, and especially since Dr. Goldberger has taken upon himself the privilege of criticising adversely the work of Dr. Jobling without offering points upon which his criticism is based. I was anxious to have Dr. Jobling discuss this question, because I, too, am familiar with his work in Nashville and consider it admirable.

It is true, as some of the speakers have said and emphasized, that we have said things which have been said years ago, but these things have not been said by American investigators, and I feel that we in America should go over the ground thoroughly and accept nobody's statement, as Dr. Goldberger has said, which has been handed down to us through books for years and years.

I want to pay tribute to Dr. Goldberger for his excellent work in the field of investigation of the etiology of pellagra. I feel we should not accept the facts which have been stated by other men years ago without investigating them ourselves and without going over the field thoroughly.

Dr. Hayne has called our attention to the decrease in pellagra during this year. That is true with us in Charleston as well as in South Carolina as a whole, and, as he states, in other regions. I do not believe that the Negro in Charleston in whom we find pellagra rampant has ever heard of any dietetic theory in reference to pellagra, if he has ever heard the word pellagra itself. I do not believe that his diet has been changed in the present year. It may be said that present industrial conditions have allowed better living among our people as a whole. That has certainly not affected the Negro in Charleston. His pay is the same as it was before the war. The war has nothing to do with his present condition and the diet of the Negro is the same as before. As to why pellagra has decreased markedly, I have no explanation to offer, but I would like to make a suggestion that in my work in connection with amebic dysentery I have been looking very assiduously for amebae in these Negroes during the past year and I have been unable to get hold of any. Amebic dysentery has decreased along with pellagra with us, not that I want to indicate that amebic dysentery has anything to do with pellagra; but if some one will tell me why amebic dysentery has been so little seen this year it might have some relationship to the reason why pellagra has decreased.

Dr. Goldberger—I wish to apologize for getting up again, but the remarks of Dr. Lynch make me feel that injustice has been done to both Professor Jobling and myself, and hence I have one other word to say. As you will recall, I was reluctant to make any specific reference to Dr. Jobling and his work, but I was obliged to do so, as Dr. Witherspoon had brought the subject up. Naturally, I could not give detailed reasons for the statement that I made within the limits of time allowed, but I am ready to give them to any one here at any time. I am prepared to present proof of the justice of my criticism right now, if such is the pleasure of the Section.

Dr. M. L. Graves, Galveston, Tex. (closing).—I have heard the remark made somewhere that a man would rather be cussed than not discussed, but perhaps the discussion this afternoon on diagnosis leaves me in the attitude of being neither cussed nor discussed, and so I may utilize a few moments at my disposal to disagree, in the first place, with my friend Dr. Babcock. I do not believe the insane and nervous are more liable to pellagra than others, and I do not think such a statement can be substantiated by statistics accurately gathered over this country. The insane asylums do not report a large number of pellagrins. The improved dietary, as well as hygienic care of the patients, perhaps lessen the incidence of the disease.

If you will remember my paper and discussion of the neurasthenic symptom complex, I always called it the neurasthenic symptom complex; I did not say anything about neurasthenia as a disease. I hesitate more and more about making a diagnosis of neurasthenia, as it occupies the enviable position that malaria and rheumatism formerly occupied. All over the country inaccurate diagnoses are being made, and it is now about time that we dismissed neurasthenia, and even hysteria, as clinical entities, granting that there are a large number of nervous symptoms, including fatigue, restlessness, insomnia, depression, irritability, etc., if you please, which are functional reactions of a nervous system intoxicated or reflexly overstimulated. We are not justified in calling these cases neurasthenia until we have exhausted every organ in the body in an effort to find the focus of infection that is producing toxic influences upon the nervous system. It is high time that we cease making carelessly a diagnosis of neurasthenia in people who come to us presenting this sort of complex until we have exhausted the gall bladder for a chronic cholecystitis or gall stones, the appendix for adhesions and chronic inflammation, the pelvis for pus tubes, for endometritis, for retroversion, etc. As a matter of fact, when we have investigated these, we are going to find that the neurological diagnosis of neurasthenia is reduced probably 75 to 90 or 95 %, and the same thing is true of hysteria. We may be less popular with the neurologists, but we should cease making indiscriminate diagnoses of hysteria until we have exhausted those foci of infection and of intoxication.

The diagnosis of pellagra is oftentimes obscure and in doubt, and there will perhaps be weeks or months before it will be possible, with any symptom complex presented by the cases, ever to make a diagnosis that is unshakeable. But I do plead here for a thorough investigation of every source of infection in the human body, and when these obscure symptoms we have talked about this afternoon are finally reduced to an irreducible minimum, and no diagnosis appears, we might consider pellagra as a possible cause, and if we set at once to work and try to correct them on the basis that they may be pellagrous in ori-

gin, we may get very many more recoveries than if we wait until the diagnosis is absolutely certain.

Dr. J. W. Babcock, Columbia, S. C. (closing).—I think that American medicine will be very much congratulated when we reach the stage that we can abolish the conception of hysteria and neurasthenia. I think from the contributions that have been made to these subjects by the neurologists of Germany and France, in which the psychogenic origin of these conditions is being more and more recognized, that this is a time when we should be open-minded as to the possibility of that development. My contention was that a person who by inheritance has a tendency toward either a neurasthenic or hysteric trend might have the exciting cause in this unknown pellagrous poison.

Another point, Mr. Chairman, that I wish to call attention to is that pellagra is really not a new disease in this country. In the limited material in my hands I was able to prove to the satisfaction of any one who is unprejudiced that pellagra had been present in the South Carolina asylums since 1884. A carefully recorded case stands on the books of that institution, the institution having been opened in 1828.

Again, I object to hearing pellagra called a Southern disease. I hope the Public Health Service will present to this Association the results of their weekly statistics that are being collected. Any one reading the public health reports week by week will be surprised to find so many cases of the disease in Boston, so many in San Francisco, so many in Chaleston, or so many in New Orleans, Chicago, or Minneapolis. So pellagra is not a Southern disease. They find it in Canada. Dr. Sanborn speaks of there being 24 cases in London in a short time.

There is an interesting chapter in the history of pellagra that ought to be worked out, and that is, whether or not it was present in Andersonville during the Civil War. I am satisfied from what investigation I was able to make of such data as I had in Columbia that pellagra was present there, according to W. J. W. Kerr, who maintained that he saw a case of pellagra there. I am satisfied that a proper and careful research of the Washington archives would disclose the existence of pellagra among the prisoners, and reading the history of the Rebellion as published by the Government, the records point very emphatically to the existence of pellagra at Andersonville prison, and it was peculiarly associated with a corn diet.

THE EARLY RECOGNITION OF PULMONARY TUBERCULOSIS*

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As this essay is intended merely as a review of the subject, an attempt will be made to embody in as concise and practical way as possible, the essential facts comprising the basic-constructive material for the diagnosis of incipient pulmonary tuberculosis.

It is fundamentally important, that we constantly bear in mind the elementary conditions upon which the course of the disease is dependent. Here we find on the one hand, the tubercle bacilli and their toxins, with resultant destructive tubercles and tuberculous infiltrations; while on the other, the blood and cellular resistant and constructive forces,—both striving in the slow battle for supremacy.

As a result of this combat, we may have the following:

1. An arrest or cure of the disease, if the infection has been completely neutralized or eradicated by Nature's resistant forces.

2. If the infection is not virulent, and the tissues' resistance is efficient, yet not sufficiently so to overcome completely, or eliminate the diseased processes, there will remain in the lungs, localized inactive foci, the so-called latent tuberculosis. (Latent tuberculous foci may never show signs of activity, or may sooner or later become very active, or progressive, causing the fatal pneumonic phthisis.)

3. If the infection predominates over the resistant forces, there is then evidenced a persistent and progressive activity in the pulmonary lesions, tuberculous disease, unless Nature's protective mechanism is urgently and strongly stimulated and fortified by proper care and treatment.

Therefore, the diagnosis of incipient pulmonary tuberculosis should be mainly based upon a prognostic point of view.

Furthermore, upon the deficiency of the

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tissues' resistance, and the port of entrance and dissemination of the tubercle bacilli, will depend the localization and extent of the primary tuberculous foci: leading to the destruction of lung tissue, and to disturbances in the general constitutional status, the latter being the reactive symptoms expressing the activity of the disease.

From the above, we can readily conceive why, in our clinics, we find cases presenting a mere shadow of the disease — very incipient tuberculosis, latent or active; while in others, the disease is ushered in with pronounced physical and clinical symptoms, incipient tuberculosis.

The former is easily relieved, and does not necessitate trying and rigid methods of treatment, but only moderate medical supervision; while the latter requires prompt, close, careful and persistent treatment.

It is utterly impossible to know when one will merge into the other, unless we can follow up and observe each individual case for a certain length of time.

That incipient tuberculous lesions, tubercles and tuberculous infiltrations can be localized only in the bronchial glands, or more so in the bronchial tree, or in more progressive cases, may find access into the interalveolar pulmonary areas, and even in the intraalveolar spaces, is today an acknowledged clinical fact. No longer do we recognize a similarity of lesions in all cases, but a different picture in each individual case.

To determine the existence of incipient pulmonary tuberculosis (incipiency not necessarily meaning involvement of short duration) and to differentiate between tuberculous and non-tuberculous pulmonary diseases, it is essential that we carefully note the following:

1. A complete family, personal, and clinical history.

2. Findings showing abnormalities in the physical state and function of the lungs.

3. Repeated laboratory and biological tests, as, the sputum analysis, the tuberculin tests, the compliment fixation test, animal inoculation, X-ray, serological examinations, etc.

In determining the family history, direct and constant exposure of offspring to tuberculous parents is of essential interest. The mere fact that, in the parentage tree, there appear one or more cases of tuberculosis does not bear much weight, if the patient has not lived in direct and repeated exposure to infection. Direct inheritance, we all know, practically does not exist. Certainly it has not been conclusively demonstrated, that the offspring of a tuberculous parent inherits either a tendency or an immunity to the disease.

The personal history will often lead us to the very instigating causes of the disease.

The housing, environment, and mode of living of an individual, during infancy, school age, and adolescence, may give a valuable clue to the primary source of infection. One with a history of early favorable environment, will not be so susceptible to tuberculosis, as the indigent, careless tenement-factory child.

The personal environment in the office, work shop, dwelling, and the mode of living (dissipation, overwork, close confinement, worry, etc.), are facts to be carefully recorded.

The occurrence of any infectious disease, especially grippe, pneumonia, typhoid, repeated colds, cervical adenitis, measles, etc., may be a stimulating factor of the disease. Any disease or condition in the life of an individual tending to diminish his resistance to infection is valuable information. Constant and intimate contact with a careless tuberculous parent, servant, or friend, opens suspicion to infection.

In the clinical history, we acquire the salient facts relative to the activity or latency of the disease. Therefore, it should be very carefully compiled.

The following symptoms comprise the chief clinical evidence of active incipient pulmonary tuberculosis, viz.: elevation of temperature; instability and acceleration of the pulse, with very slight disturbance in the respiration; digestive derangement; lowered blood pressure; loss of weight, with afternoon depression, languor and fatigue; chilly sensations, with slight night sweats; localized pains in chest and back; hemoptysis; and hacking or pronounced cough without any, or with expectoration.

Upon the manifest intensity of some, or all of the above symptoms, shall we deter-

mine the activity of incipient pulmonary tuberculosis.

The temperature, the most significant of all clinical symptoms, must be carefully recorded every two hours, for fourteen hours of the day, during three to seven days. A temperature record of morning and night is less than worthless.

The temperature in incipient active tuberculosis ranges from 97.2° or 98.2° in the morning to 99.2° or 100.2° in the afternoon, chiefly between 2 and 7 P. M.

The relation of meals, exercise, emotion, and the menstrual period, to the temperature, should not be overlooked. In a few cases, the temperature will be higher in the early morning hours; and such, is an unfavorable sign, especially if the digestion is disturbed during the breakfast meal.

A temperature rise after a prolonged rest is also indicative of a greater active process in the lung lesions.

The ratio of the temperature and respiration to the pulse is often disturbed in incipient tuberculosis. For instance, a patient may have a temperature of 98° or 99.2° F. and a respiration of 16 to 20, with a pulse at 110 to 120. Instability of the pulse is much more important than the mere rapidity. This is not often noticed in other pulmonary affections, when generally the pulse is accelerated with the rise of temperature.

Impaired digestion, "dyspepsia," is a symptom of inestimable value, as the majority of incipient tuberculous patients consult the physician for this trouble, long before suspecting the tuberculous affection. Loss of weight, languor, night sweats, etc., generally appear with the rise of temperature and digestive disturbances.

Cough, unless there has been a recent bronchial inflammation, is not a predominent symptom. A hacking in the morning, however, is a complaint in most cases. A croupous or barking cough leads to suspicion of involvement in the bronchial glands and bronchial tree. A paroxysmal cough, with a sense of oppression in the chest, is generally present in those cases where the alveolar areas, and the upper laryngeal and bronchial mucous membranes are infiltrated. This cough is often accompanied by vomiting, especially after meals. Hemoptysis often follows this type of cough.

By the physical examination of the chest, we learn topographically what destruction has taken place in the lungs.

If the tubercles are but sparsely distributed in the bronchial tree, or alveolar areas, the physical signs will be few; while they may be marked if the tubercles, and tuberculous infiltrations, are closely agglomerated.

Inspection is practically negative, with the exception of some atrophy in the muscles of the neck and the chest, on the side of the affected lung. When previous pleurisy has occurred, there may be a lack of expansion in the upper chest walls. This can best be detected by placing the thumbs over the spinal column and the index fingers in the supra-clavicular spaces, with the other fingers pressing on the ribs, in the infra-clavicular spaces.

The lagging of the diseased lung, upon forced inspiration, will show a lack of expansion. This is a valuable sign in incipiency.

Palpation, in a few cases, may elicit greater areas of tuberculous consolidation.

Percussion, unless the tubercles are conglomerated, gives but slight dullness. A tympanitic note in the supra-spinous fossa is, at times, the only indication of small areas of infiltration and tuberculous deposit. It is necessary to percuss both sides after forced inspiration and then after expiration. Dullness is better detected when both sides are percussed after expiration. Errors might be committed, if one were not careful to percuss both sides on inspiration, and then after expiration.

Auscultation gives us the principal information in the location of the pulmonary tuberculous foci. The main physical signs are: increase of voice sounds; feeble, harsh, or rough breathing; granular breathing; prolonged expiration; intermittent or wavy respiration; rumbling; or any variation in the clear vesicular breath sounds. A sharp whistling sound following a forced, twice-repeated cough, is often heard in early tuberculosis of the bronchial tree. Any of the above signs may make one suspect incipient pulmonary tuberculosis.

Crepitation, and fine moist rales, are

often present in incipient tuberculosis, and can best be heard after a deep, twice-repeated succussion cough. Medium and large moist rales are not present in incipient pulmonary tuberculosis.

The site of election for incipient pulmonary tuberclous lesions is, in the majority of cases, at the inner border of the upper half of the scapula, and, in a few cases, at the infra-clavicular space, near the inner third of the clavicle. Lesions are oftener detected in the upper lobe, posteriorly, on the right side; and, in a very few cases, in the upper part of the lower lobe. Lesions in the anterior part of the lungs are seldom to be found in incipiency; and, when present, they are of more unfavorable prognosis.

In many instances, repeated examinations are absolutely necessary for a correct diagnosis; and no one should give an opinion in any pulmonary case, simulating incipient tuberculosis, merely upon a single physical examination of the chest. It is better to have the patient return for repeated examinations and observations, than to give him a wrong diagnosis; and even then, the diagnosis can only be made certain, after a close study of all the clinical and laboratory findings.

Tubercle bacilli are found in about 40 to 60% of cases of incipient tuberculosis, thus leaving a fair percentage of cases where the only pathognomonic sign of open tuberculosis, the tubercle bacillus, can not be found.

A high lymphocytic count is often present in incipient tuberculosis. A high neutrophilic index, when constant, is a sign of active and progressive lesions.

As other diseases often simulate tuberculosis, viz., apical pneumonia, grippe, catarrhal coccic infections, syphilis, cardiac and valvular diseases, atelectasis, bronchiectasis, etc., and since there are no pathognomonic clinical symptoms or physical findings of tuberculosis, repeated sputum examinations are the only means by which we can corroborate the diagnosis or remove the stigma of open, latent, or active pulmonary tuberculosis.

In the cases of closed tuberculosis, with marked clinical symptoms of activity, and where the sputum is repeatedly negative; it is impossible to ascertain definitely, whether the disease is tuberculous or non-tuberculous, unless we use the tuberculin tests, or the complement fixation test.

When the skin test of Von Pirquet has been negative for two or three tests, one can feel assured of the total absence of an incipient tuberculous infection.

When the first, second, or third test, shows a positive reaction, with induration, we can feel certain that there is a tuberculous focus somewhere in the body. Then it is advisable to use the subcutaneous test for corroborative evidence, as to the nature and location of the lung lesions.

I feel much safer in telling a patient that he has incipient tuberculosis, latent or active, when he has showed conclusive proof of tubercle bacilli in the sputum, or a positive tuberculin reaction. Otherwise, I am in doubt of the tuberculous nature of the disease, for it may easily be possible, to mistake many non-tuberculous affections for incipient tuberculosis. This I have often seen demonstrated in the tuberculous clinic and wards of the Charity Hospital.

Most assuredly, the diagnosis of active incipient tuberculosis must be based only upon the manifest clinical symptoms.

The Roentgen rays are of help mostly in giving a topographical distribution of the involved lung areas, but can not differentiate between active and latent foci.

The complement fixation test is considered by some a means of differentiating between active and latent lesions. I hope this will prove to be true in the near future.

In concluding, let us bear in mind that in order to diagnose incipient pulmonary tuberculosis, we must give our full time and attention to it; and that, furthermore, it is essentially important to carefully study, especially the manifest clinical symptoms, and also the physical lung signs, with the corroborative laboratory findings.

What are we to do with the latent tuberculous?

In some cases of incipient tuberculosis, the inactivity of the lesions soon manifests itself, leaving the patient in a state of latent tuberculosis. These cases have always interested me, and in my opinion should be kept under limited observation in order to detect any exacerbation or reactivity of the disease. Such cases should

not be sent to sanatoriums or state institutions, and be made to follow expensive and trying methods of treatment, unless they show recurrent symptoms of activity. A change in their mode of living, with the correction of any impaired function of the body; a nourishing diet, and an open-air life—is sufficient, in the majority of cases, to eliminate the latent focal lesions.

Such cases can be safely kept at work, or at their usual occupations, unless they develop any of the manifest symptoms of active clinical pulmonary tuberculosis, when more aggressive treatment is necessary.

True, many may develop a fatal pneumonic phthisis, but often this can be averted by proper precautions, and timely medical care.

Therefore, in the diagnosis of early pulmonary tuberculosis, one must separate the active incipient tuberculosis with clinical sypmtoms, such as slight fever, instability and acceleration of the pulse, dyspepsia, loss of weight, chills and night sweats, hemoptysis, etc., from the latent incipient tuberculous, where the physical findings denote a lesion in the lungs, but with none of the cardinal clinical symptoms indicating active or progressive tuberculosis.

AUTHORS' ABSTRACTS

Medicine

Pellagra: Deductions from the Experience of Others. E. H. Martin, Hot Springs, Ark. Memphis Medical Monthly, Vol. XXXVIII, No. 1, January 1, 1917, p. 9.

In no other disease do we find such diverse experiences reported and opinions announced as in pellagra.

We have been offered as causes:

1. The spoiled maize theory.
2. The cotton seed oil theory.
3. The ameba theory.
4. The carbohydrate fermentation theory.
5. The unbalanced diet theory.
6. The colloidal silicia theory.
7. The specific organism theory, in many forms.

No one of the theories has been acceptable. One of them may be true; all of them can not be true; and none of them seem to all of us to be true.

The treatments advised are as adverse:

1. Fruit juices and non-carbohydrate diet.
2. The "well-balanced" diet of nitrogenous foods (rather a misnomer).
3. The alkaline treatment.
4. Quinin hydrobromate.
5. Arsenical preparations.

Pellagra lived in a foreign country for more than two centuries that we know of without disturbing us. After having been brought to this country it first gave trouble on the coast nearest to its former domicile. It then spread westward over all of the country having a climate similar to that of the country whence it came. It did not, except in isolated instances, spread northward as in the same manner it had failed to spread northward in the continent whence it came. The verdict must be that the cause of pellagra is something alive and that its living cause prefers a warm climate.

It is easy to understand that little faults of nutrition may make one more susceptible to the unknown germ of pellagra.

The history of the disease and our own experience shows that the germ of pellagra is a feeble organism only thriving in the feebly-resisting individual, and any diet or treatment or change of environment which increases the individual resistance enables the afflicted patient to throw off the disease.

None of the treatments offered is conflicting. Why not use them all?

Pellagra in Panama. Otto T. Brosius and Morris Joseph, Ancon, Canal Zone. Medical Review of Reviews, January, 1917, p. 39.

Pellagra is not an uncommon condition at the Santo Tomas Hospital of Panama. The number of cases, 119 in all, during the last four years, has increased steadily from 7, in 1912, to 51, in 1915, and 18 cases in three months of 1916. This probably due to an increased ability in recognizing the condition.

The cases were most abundant in November, December and January. Forty per cent. of the cases showed a very short duration of one to two months' illness. Fifty-five per cent. of our cases terminated in death and often with a duration of illness of less than six months.

As to sex, 59 % of the cases were female and 41 % males, most all of which were among the West Indian Negroes, making up 79 % of our total number. Very few of the true natives of Panama were effected by the disease. The food that these people subsist upon suggests very little, though meat is more or less of a luxury with most of our patients. As for their age, 88 % of the cases were found to be between 20 and 50.

The pellagra manifestations commonly described were found. Dermatitis was present chiefly upon the extremities, occasionally upon the neck, genitals, and face, and less commonly upon other parts of the body. The gastro-intestinal stomatitis, emesis, abdominal pain and tenderness, and less commonly constipation and foul breath.

Necropsy in 36 cases revealed principally gastro-intestinal lesions.

Intestinal Troubles in Railroad Men. M. H. Biggs, Rutherfordton, N. C. Proceedings of Annual Meeting, Association of Surgeons of the C., C. & O. Railway, May 10, 1916.

The author points out the necessity for proper care of the intestinal tract, both to maintain health and to assure resisting power in illness. "If we are interested in our work and keenly

alive to our duties and responsibilities, we will not only treat injuries and the results of accidents generally, but we will try to keep our men well conditioned. We will give them advice as to how to maintain health, whether it be by proper living, the adoption of sanitary measures or the administration of vaccines or serums."

There are many intestinal troubles which, while not peculiar to railway men, occur with sufficient frequency to demand especial attention.

Importance is attached to correction of lesions in the mouth; to inoculation against typhoid and paratyphoid; to sanitary measures in the prevention of dysentery and diarrheal diseases; to reduction of the incidence of appendicitis by avoiding irritation or actual inflammation of the intestinal tract; and to recognition of the fact that the majority of dyspepsias are due to lesions outside the stomach.

Rupture of the intestine and perforation of preexisting duodenal and gastric ulcers should be suspected in abdominal injuries. Hernia should be considered as constituting a bar to employment.

A systematic general physical examination of all applicants for railway positions should be adopted by all railway companies. Rectal conditions, such as hemorrhoids and fistula, should receive appropriate treatment.

"Perhaps the crux of the matter is: that we should investigate the complaints of those that have, or believe that they have, digestive disturbances." This will add to the well-being and efficiency of railway employes.

The Classification of Parasitic Amebae of Man. Chas. F. Craig, Washington, D. C. Journal of Medical Research, Vol. XXXV, No. 3, January, 1917, p. 425.

The classification of amoebae is exceedingly difficult owing to several factors, the most important of which are the lack of knowledge of the life cycle of many forms, their delicate and simple morphology, and the conflicting opinions of protozoologists regarding specific and generic differences. However, we now are able to divide the parasitic amoebae of man into genera, and all amoebae into seven genera, as follows: *Amoeba Vahlkampfia, Nagleria, Craigia, Trimastigamoeba, Paramoeba, and Endamoeba.* Of the seven genera only three are of interest to the physician, i. e., *Vahlkampfia, Craigia,* and *Endomoeba.* The genus *Vahlkampfia* includes free living amoebae of the *limax* type and are only of interest to the physician because they may contaminate cultures made from the feces or liver abscess pus of man, and thus be mistaken for true endamoebae. Members of this genus can be easily cultivated, but are not normally parasitic in man or animals; although in a few instances they have been described as being parasitic in the human intestine. The genus *Craigia* contains five species, three parasitic in marine worms and two in man. The latter, *Craigia hominis* and *Craigia migrans,* cause a form of severe diarrhea and even ulcerative dysentery in man. The genus was named by Calkins to include *Paramoeba hominis* described by the writer. The genus *Endamoeba* includes three species of importance to the physician, *Endamoeba coli, Endamoeba histolytica,* and *Endamoeba gingivalis.* The first species is parasitic in the normal human intestine or in the intestine in various diseases and has no pathogenic importance. *Endamoeba histolytica* is the cause of endamoebic dysentery and a parasite of very great importance to the practicing physician, while *Endamoeba gingivalis,* which occurs in the normal and diseased human mouth, is of interest because of the unsuccessful efforts that have been made to connect it with the etiology of pyorrhea alveolaris. These species can all be differentiated in both fresh and stained preparations and the differentiation of *Endamoeba coli,* the harmless endamoeba, and *Endamoeba histolytica,* the cause of endamoebic dystentery, is of the utmost importance in cases suspected of this form of dysentery.

Infantile Scurvy. Alfred F. Hess, New York, N. Y. American Journal Diseases of Children, Vol. XIII, No. 1, January, 1917, p. 98.

As it had been shown that a clinical similarity exists between beriberi and infantile scurvy, it seemed as if yeast, which is a specific in the former disease, might also prove to be a potent antiscorbutic. Clinical experience did not substantiate the analogy, but demonstrated that this substance is of no value in scurvy either as a prophylactic or as a curative dietetic agent. It was found, however, to possess virtue as a stimulant to growth, when added to the milk in the form of the fluid autolyzed yeast or given to older infants as a dessicated powder.

The embryo or germ of the wheat seed is another effective therapeutic agent in the cure of beriberi or in avian polyneuritis. Accordingly, this was also tested clinically for its antiscorbutic power. For this purpose a cereal and a watery extract of the germ meal were prepared. These preparations manifested some value as antiscorbutics, but not sufficient to render them useful in this connection from a practical or clinical standpoint. The watery extract, which is readily prepared, was found to stimulate growth, and may be used to advantage, on account of this quality, as a substitute for barley in milk preparations.

It was furthermore noted that there is an idiosyncracy as to the reaction to well-established antiscorbutics. For example, in some instances orange juice may meet with only partial success, while potato produces a rapid cure.

Some Points About Hookworm Disease, Its Diagnosis and Treatment. W. C. Billings, Angel Island, Cal., and J. P. Hickey, San Francisco. The Journal of the American Medical Association, December 23, 1916, p. 1908.

The finding of the ova in centrifugalized specimens is not difficult. The ovum of the Tr. strongylus subtilis is likely to be confounded with that of the hookworm, but its larger size and the fact that it contains more blastomeres will differentiate it. The ovum of A. lumbricoides, when devoid of its albuminous covering, and more rarely that of Shistosomum japonicum, may also be mistaken for hookworm. Lesions or history of ground itch, past or present, are rarely found in Orientals, which seems to suggest unconscious corpro-

phagy as a means of infection. Very often "anemia," "angels' wings," "dyspnea," etc., are absent in these infected Orientals; therefore, microscopical examination of the feces is imperative as a routine measure. A condition resembling an arcus senilis is present in many cases and may occur at any age.

In a series of 300 cases treated with oil of chenopodium and a chloroform-castor-oil mixture, 87 % were cured by one treatment, while in a like number of cases treated by thymol, 74 % were cured. Oil of chenopodium has the advantage of eliminating dietetic precautions. The intestinal tract should be emptied before its administration.

Toxocologically, oil of chenopodium is considered safe when administered in doses of 15 drops (not minims) on sugar every two hours until 45 drops have been given. It should be followed in two hours by a mixture containing castor oil 18 c. c. and chloroform 2 c. c. and this followed in 30 minutes by 30 c. c. of plain castor oil. The oil has not been administered when hookworm disease was complicated by pregnancy.

Infantile Paralysis Treated with Immune Serum. Orlando H. Petty, Philadelphia, Pa. New York Medical Journal, December 16, 1916.

In deciding the value of any therapeutic agent, a much larger number must be observed than the eleven cases above reported, yet with acute poliomyelitis many observers must each report their small series that a large number may be collected for a final opinion. From a study of eleven cases of acute poliomyelitis treated in private homes with immune human serum administered sub-durally, which administration caused no unfavorable symptoms, the author would draw the following conclusions:

Immune serum, to be of marked value, must be administered early in the course of the disease, in the preparalytic stage, or at least within a few hours after paralysis has developed.

There is little doubt that the subdural method of administration in this disease, as in all cases of menigeal involvement, is the most efficient. Sub-dural administration should always be by gravity, less serum in amount being introduced than the total amount of fluid withdrawn, except in those rare instances where no more than two or three mils of spinal fluid will drain through the needle, where 5 mils may be administered cautiously. A single sub-dural dose probably should not exceed ten mils, and be repeated within twenty-four hours if the case is not progressing favorably. A serum, not inactivated, from those who have had an attack not over ten years previously, would be the one of choice.

Bedside Directions for the Treatment of Acute Lobar Pneumonia. Solomon Solis Cohen, Philadelphia, Pa. The American Journal of Clinical Medicine, Vol. XXIV, No. 2, February, 1917, p. 101.

The author gives detailed directions for the administration of quinine and urea hydrochlorid by deep muscular injection or intravenously; and when this is not feasible, by the mouth; of pituitrin or cocaine as pressor agents; and of camphor or digitalis to sustain the heart when necessary; with incidental directions concerning fresh air, alkaline, saline (chlorid) beverages or infusions, and strapping the chest, applying counter-irritants, heat, and lambs' wool jacket.

The quinin salt is given in doses of 15 or 25 grains at first, repeated every three hours until the temperature falls to 102° F. and is resumed when the temperature rises to 103° F. again, pituitrin 20 minims, or cocain one-half grain every three hours until the pulse-frequency in beats per minute is exceeded by the systotic pressure in mm. Hg. or pressure is 90 or less. Digitalis (equivalent to 20 minims digalen) by hypodermic injection every two to four hours when there is less than 10 points interval between diastolic pressure in mm. Hg. and respiration-frequency or pressure is 60 or less. Bacterin (autogenous) is used in prolonged cases and in cases of delayed resolution.

Chronic Colitis and Its Roentgenologic Findings. Francis B. McMahon and Russell D. Carman, Rochester, Minn. The Journal of Laboratory and Clinical Medicine, Vol. II, No. 5, February, 1917, p. 328.

This article first summarizes the pathology and the symptomatology of chronic colitis of the granular and ulcerative type. The Roentgen findings are quite characteristic, and are due to the organic changes which occur in the coats of the intestinal wall. Roentgenoscopy and Roentgenography with the use of a barium enema show the bowel to be small and contracted and its wall smooth and devoid of haustrations in the part or parts affected. Where the cecum is involved the ileocecal valve is incompetent, with rapid spontaneous entrance of barium into the terminal ileum. The Roentgen examination will show the location and amount of the colon involved and furnish information as to the extent and severity of the pathological changes present. There are other conditions which may in a measure simulate chronic colitis in the Roentgen examination. Smooth and unhaustrated borders may be present in a part of the colon in cases of malignancy and occasionally in chronic constipation, but careful observation will show that, apart from the filling defect of a neoplasm if present, the size of the colon is not contracted and smaller than normal. In a number of cases of chronic entamebic colitis there were present no Roentgen findings differing from those found in the normal colon, but the series did not include any cases that were prostrated. Nine reproductions of Roentgenograms illustrating the phenomena found in chronic colitis of this type and bearing on its differential diagnosis, as well as one photograph of a gross specimen, are included. Four complete case histories are selected as illustrative of the group of cases studied.

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TROPICAL DISEASES AND PUBLIC HEALTH

PUBLIC HEALTH FACTS AND THEIR PRESENTATION*

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Prevention of disease is now no Utopian dream. Prevention of poverty, crime and injustice also is steadily rising among the practical possibilities, and the doctor, the only altruist whose feet have never left the ground, is leading the forces of truth that are bringing this real happiness to mankind.

The prophets of our faith, who pictured for us when they sent us forth to practice the art of healing, "the roseate time when disease would yield its fortress to our charging hosts," now doubtless look down from their quiet fields, academic or Elysian as the case may be, and smile sardonically to see their playful forecast of an impossible time really coming true.

The seers, too, under whose Sunday preachments we sat in that remote day when we were not "too busy" to go to church very likely gaze in mild surprise from the heights they now occupy at the promise of early fulfillment of much that they only expected in the millennial dawn.

Now that the day of preventive medicine has dawned and the lessons the doctor has so long and patiently taught are bringing forth their logical results in the abounding health of a well-informed laity, it is imperative that he keep his hold upon the leadership of the crusade he has started.

Since first his profession committed itself to truth he has acted in contravention to the rule of the jungle and the cave and he can not falter now in his captaincy of the gathering forces of those whose avowed purpose is to make his ancient art unnecessary.

He has been, as it were, a kind of John the Baptist, serving as the unselfish forerunner of the health officer of the coming age. A voice crying in the wilderness: "Prevention is better than cure." "I must therefore decrease as the real health officers increase."

Custodian, then, of the knowledge of disease prevention, the doctor must continue to dispense it liberally or lose the character he has won through the centuries as the greatest and most disinterested helper of the race. It is in regard to this knowledge and a method of its popular distribution that I claim your attention for a little while.

The great outstanding fact upon which the practical work of disease-prevention is based is that "the germ-poisons of people are the main messengers of death;" and this fact has given rise to the rule, "Keep the poisons of the sick from the bodies of the well." Since we do not always know who are the sick, in order to "play safe" we say, "Keep the secretions and excretions of the well and of the sick from the possibility of getting back to others." All the work of all the health departments in all the world, where they are doing their duty, is mainly directed to this simple end.

The methods of the public health officer, doctor though he be, must in two important respects be the exact reverse of those used in his character as a private practitioner. The physician is committed to secrecy as to private ailments and to silence as to his own part in cure. The public health man must give the widest publicity to infectious disease and blow the loudest horn obtainable to proclaim the efficacy of the means to prevent its spread.

To illustrate one phase of this megaphoning of public health truth to the wayfarer and the fool, I venture somewhat with fear and trembling to tread an unfamiliar domain.

The simple facts of public health, important as they may be, are raw and unsavory, but anybody can understand them. The problem is to get people to receive and act upon them. It is not what people see

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and hear and have that makes the world move forward and upward, but what they remember and know and use. The public health officer, therefore, should always bear this in mind. There is great danger that a scientific man, used to scientific audiences, in striving to tell all that is true about his subject, will lose the attention of his lay hearers by a prolixity often as tedious as it is accurate. Any plan, then, calculated to make the average "garden variety" of man remember what is told him is entitled to careful consideration.

To enlist attention, a point of contact with the audience must always be found, and if one of practically universally application is obtainable, it should be used to the full by the health officer in popularizing his message. Such a point of contact, I believe, is found in the sense of humor and of rhythm that lies so close to the surface of the nature of almost every man, woman and child.

While there may be some whose sense of humor is more or less distorted or even atrophied, there are few, if any, people in the world who are not pleasurably affected by some form of rhythmic expression. Many, perhaps most, people's sense of rhythm is satisfied with Mother Goose Jingles, Bab Ballads or Alexander's Ragtime Band. Others' rhythmic needs are fully met by Watts' hymns, The Psalm of Life or The Boy Stood on the Burning Deck. Then, there are those whose taste requires selections from Robert Browning, a Beethoven sonata or a Wagnerian chorus. The same underlying human chords are struck, however, whether they vibrate to A Hot Time in the Old Town or a Liszt rhapsody, and it is upon these chords we would play. Fortunately for the present exponent of this method, those who appreciate Liszt, Wagner and Browning, generally speaking, already know something of public health truth and so the need for genius in composition in order to impress them is not paramount in the plan set forth.

In an effort to memorize the cranial nerves in the study of anatomy, which of you doctors does not remember the great aid to flagging memory were the initials of that classic couplet:

"On old Mons piny tops
A Finn and German picked some hops."

Is it not logical and according to human nature, then, to appeal as the New York Health Department does in its fight against colds and grippe to the same tendency of the mind to respond to rhyme when it sows broadcast through the city schools this bit of wisdom?

"Cover up your cough and sneeze,
For if you don't you'll spread disease."

and follows it up with this more elaborate but not less impressive piece of real publicity:

"Mary had a little cold,
It started in her head,
And everywhere that Mary went
That cold was sure to spread.

"She carried it to school one day—
There wasn't any rule.
It made the children cough and sneeze
To have that cold at school.

"The teacher tried to drive it out,
She tried hard, but—ker-choo-oo!
It didn't do a bit of good,
The teacher caught it, too."

To these may be added in consideration of the need for some curative advice:

Be sure to guard each cough and sneeze,
Or your grippe will surely spread.
Then jump into a hot tub bath
And soak from foot to head.
Take what the doctor tells you to,
And straightway go to bed.

Don't kiss, don't booze, don't work, don't play,
If with the grippe you're ill.
Eat well-cooked food, breathe sweet, fresh air,
Keep warm, keep clean, keep still.

These three health maxims for children in the same strain may also be worth using on occasion:

1. Be sure to guard safely your cough and your sneeze,
Or many around you may catch the disease.

2. If your handkerchief's soiled or you haven't got one,
Cough and sneeze to the floor, then no harm will be done.

3. Keep your fingers and pencils away from your face,
For the mouth for these things is the very worst place.

It is contended that these more or less rhythmic attempts with their slightly humorous flavor are more easily remem-

bered than simple prosaic admonitions from whatever source or authority. This being true, what hinders us from extending the method to include all the diseases that afflict us in a kind of Mother Goose medley which for the future will instruct the children by preventive truth oft repeated, as well as entertain and amuse them?

The limerick, cheap as it is, may also prove an effective medium:

A man with consumption named Blue
By his doctor was told what to do.
So he rested with care,
And breathed the fresh air,
So now of good lungs he has two.

A boy with the measles named Hite,
Had a cough that was ringing and tight.
With eyes very red
And a cold in his head,
He infected all children in sight.

A doctor whose name was John Snoop,
Had a patient with membranous croup.
Antitoxin near by
He neglected to try,
So Death arrived with a whoop.

There was a school trustee named Green,
Who objected to virus vaccine,
But his servant named Brown,
With smallpox came down,
Now Green is a sight to be seen.

The couplet is a very simple form, easy to construct, easy to remember and capable of indefinite extension where it is desirable to go into detail:

If you wish to be healthy and happy and wise,
You will clean up your barnyard and screen against flies.

Screen your privy, my friend, and pollute not the ground!
Then hookworm and fever will not spread around.

Our water and milk must be guarded with care,
Or filth from soiled hands may poison us there.

The hands of the plowboy will not need much soap
While the farm well is open and has a wet rope.

The story of an infectious disease may be made somewhat more attractive by dressing it up thus. Here is our old friend smallpox:

Of all the diseases attacking mankind
Smallpox is as ugly as any you'll find.

It comes with a fever, eruption and pain,
And horrid disfigurement, sure to remain.

Long ago this disease, like measles today,
Put to bed more than half of the people, they say.

When William and Mary sat on the throne
Of Britain's great kingdom in days that are gone,

The queen of the realm was smitten and died,
And nothing could stop the disease in its stride.

Death's awful hand struck the young and the old,
And those that were spared were a sight to behold.

Edward Jenner, a doctor, discovered one day,
That cowpox vaccine drove smallpox away.

So he spread the good news over land and o'er sea,
Till the world from this horror at length was set free.

By the use of vaccine the disease was wiped out,
And the folks living then were too grateful to doubt.

But now there are those who, forgetting the past,
And the perils of smallpox, conquered at last,

Neglect vaccination and open the door
To infection controlled by this measure before.

Those in power oft refusing their duty to do,
Proceed to oppose the Board of Health, too.

Thus the poor, and the children, the heedless and fools
Are left unprotected and pestilence rules.

If you wish to be wise and prevent all this woe,
Leave matters of health to the people that know.

In an attack upon time-worn abuses the mere mention of which creates or stirs a spirit of antagonism in many old citizens, a bit of vivid description sometimes shocks them into action. Witness the romantic old well of our thirsty childhood, under the title role of

BLACK JIM'S ABLUTIONS

An open well near the farm house stood,
Its old oaken buckets a-swing.
The cracks in its floor of rottening wood
Let through almost any old thing.

Black Jim came up from hauling manure,
And walked about on the well.
Bare feet were as foul as an open sewer,
And his hands had a barnyard smell.

Siezing the bucket he sent it down
To the bottom so cool and still.
The farmer stood by with never a frown
As Jim pulled the wet rope with a will.

With ease the bucket was lifted o'er
The curb with hands full of grime.
The water splashed on the leaky floor,
Trickling through with its burden of slime.

Jim drank from the rim of the vessel of oak,,
And sauntered on back to his toil.
But behold! The hands and the feet of the moke
Were now free from a taint of the soil.

For hands had been cleansed by wet vessel and rope,
His feet by the splash from the rim.
His face from the bucket now needed no soap,
A clean, happy boy was our Jim.

It thus may be seen by each man and each maid
That a well may be worse than a sink;
If it has not a pump and a floor that's well laid
To safeguard the water they drink.

To put a better taste in the mouth than one is likely to have after contemplating the only external application of water the average negro farm hand gets from one week's end to another, let us turn for a moment to an appeal to the emotions of the fellow who likes Watts' hymns:

Rock-a-bye safely in your little crib,
Baby, so sweet and so fair;
Your mother has given you life from her breast,
And no harm will come to you there.

The other poor infant whose mother has gone
To theater, party or ball,
Trusting to milk uninspected and poor,
May hear the death angel call.

For many more babies die of neglect
Than are called by the Great Father's will;
For dirt in the milk is a poison to babes,
And as a rank poison will kill.

* * *

Little Tom Beddow went to the meadow
To drive the cows to the barn;
A dog that was mad came and bit the dear lad,
So he ran to the house in alarm.

Though lacking in wealth to the State Board of Health,
His parents took Tommie away.
He was cured of his bite, but is it quite right
To permit dogs to cause such dismay?

Not to tax your patience too far by multiplying examples of public health doggerel, as a final specimen the somewhat more imaginative *Gray Ogre* is submitted:

An Ogre there is of a terrible kind
Slaying thousands on thousands today.
He will strike down the mother; the infant he'll find,
And the strong man who gets in his way.

He is ghastly and gray and grim to behold,
And he wanders about everywhere;
He transforms his victims, the young to the old,
And changes their joy to despair.

He has no big sword nor enchanter's wand,
Nor a vaporous, poisonous breath
That floats on the air like mist from a pond,
Bearing ghost-like a burden of death.

But he uses with cunning as subtle as sin
A very small living microbe;
This he plants in the blood, the lungs and the skin,
Even into the joints he will probe.

The germs that he sends on their errand of hate
Move slowly and steadily on,
The barriers of life give way soon or late,
Then the will to struggle is gone.

Now, how does this Ogre so horrid and grim
Spread these deadly poisons around?
He has at his call, both working for him,
Two imps from down, deep under ground.

The first and the worst keeps the light turned down low,
For the Ogre must work in the dark;
The other spreads pitfalls and adds to the woe,
Of pity he has not a spark.

The name of this Ogre so deadly and bad
Is Consumption, that scourge of the race,,
The imp at his right hand is Ignorance sad,
With the Carelessness imp in next place.

For Ignorance acts by darkening the mind,
A sad, inexcusable thing;
With the dirt, then, from Carelessness not far behind,
Consumption is given full swing.

The way, then, to stop this Ogre's dark work
Is to kill off the imps at his side;
Turn the searchlight of Knowledge on the den where they lurk,
And you'll slay them wherever they hide.

Now, my friends, if you have been able to perceive that in with the mass of unpolished rhymes I have inflicted upon you, there is, in addition to the important truths emphasized, an emphatic plea for more of humor and of human interest in the every-day job, and will refrain henceforth from taking yourselves and your work too seriously, I will have gained a reward out of all proportion to the effort put forth.

DISCUSSION

Dr. W. S. Leathers, University, Miss.—I think Dr. Flannagan is absolutely correct in his point of view that we do not use enough in our work, especially in dealing with school children, the principle of telling a story which carries with it a certain teaching. There are very few people—in fact, they are rare exceptions—who are especially successful in telling stories. I have in mind a gentleman who, in my judgment, strikes the keynote of this particular idea better than any person I ever heard speak on the subject, with the exception of our honored essayist, and that is Mr. Faulkner, of Georgia. That is the principle he advocates and teaches. I have seen him take a class of school children and use this

method with them, and he not only interests the school children greatly, but he also gets the sympathy and interest of parents who are present. They appreciate the simplicity of his teaching, and I am sure that those of us who deal with people at large in health matters could use most effectively some of these apparently simple things in presenting our information to the public. It is not, perhaps, sufficient for us to get up and tell the facts altogether about a cold or about measles, or about this and that disease, in a rather prosaic way, which might be interesting to the speaker from our standpoint, and there are those present who are sufficiently appreciative to realize the importance of what is being said, but there are a great many present who probably would be appealed to considerably if we were to mingle with our thoughts this idea of lightness and poetry and history if we could do so and, at the same time, teach the principle which is important from a scientific standpoint.

Dr. Claude A. Smith, Atlanta, Ga.—We have realized for a great many years that we have knowledge which, if put into practice, would perform wonders in the preservation of health, but the way in which to get that knowledge before the people has been the real problem. We have a sufficient amount of knowledge already worked out to last us for many years to come, and our problem now is to instruct. Education, we realize, and have realized, is the keynote of our success in public health work. We all know that we must go back and get away from our scientific side and use the popular side and bring the two together, and this story which comes from Dr. Flannagan opens up a field or avenue that will bring great results. We can not tell how much we can achieve until we try it out. The simplicity with which we present scientific matters we know is the method that is going to bring the greatest results if we stop to analyze our own conditions at the present time. For instance, as he suggests there, if we try to remember the months in the year that end with thirty days, we can accomplish something. We can begin by saying "thirty days hath September, April, June and November." The children will remember the rhyme, and that is the keynote of our placing things before children. So if we can put ourselves, as Dr. Flannagan suggests, in the position of the child we can see the great and rapid benefit which will come from the methods which he suggests.

Dr. Paul B. Johnson, Washington, D. C.—Dr. Flannagan, in his paper, has brought out not only the matter of humor, but the matter of simplicity because, after all, most all people we have to reach must be reached with simplicity.

I believe there is one vehicle for the spread of public health facts which has not been used widely before, and that is through the commercial traveler. There is a small army of commercial travelers going through the country, many of them working a long way from home and in territory with which they are more or less familiar, or in some cases not familiar, and many people with whom they have very little in common. All through the country there are commercial travelers going out into the immediate vicinity to sell to the small stores, so that these travelers are going out every two or three weeks through some territory or other. They know the people, they like them, and have their interests at heart. I believe that if we could get these commercial travelers to take a supply of little leaflest or pamphlets of information that would be useful in these back rural places, that gradually we would accomplish much. It can doubtless be done through the heads of the wholesale houses, particularly many of them who are public spirited, who are on the side of the state board of health, and who would be glad to instruct their commercial travelers to use what information these leaflets, these hankbooks, dodgers, and so forth, contain. They could leave a few handbills with the storekeeper; they could tack them on to telegraph poles, and so on, and in that way supply people in the back country districts with the bits of information that Dr. Flannagan has advocated.

CONTROL OF CONTAGIOUS DISEASES*

By C. V. Reynolds, M.D.,
Asheville, N. C.

The control of contagious, communicable and infectious diseases is dependent upon adequate health laws enforced by an efficient whole-time health officer who can not be swayed by friends or relinquish a principle to curry political favor. Political health workers and health are incompatible; where politics creep in, health creeps out. Deficiency retiring only before efficiency should be our standard, and the decision should be made by those who are best qualified,—the medical men.

Politics, indifference, poverty and ignorance are the four greatest enemies to the eradication of the controllable diseases. The medical profession is responsible in a way for the lack of co-operation on the part of the laity.

While we are sincere in our efforts to lesson the morbidity and mortality rates, we are too prone in our zeal to accomplish great things, to follow an idea of one of our leaders not based upon practical experience or that of true knowledge, so often creating a popular wave to be broken upon the rock of experience. Again we err in being too timid to take issue, through fear of criticism or embarrassment, thereby losing the opportunity of stemming the tide before disaster comes.

*Read by title in Section on Public Health, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

The laity look to the medical profession for guidance, and properly so; but teaching certain methods today as the correct method to be untaught tomorrow is not conducive to the retaining of confidence. To teach known truths is best, leaving the unsettled questions admittedly and openly in the experimental stage, declaring nothing certain unless it be known to be true. In our fight against controllable diseases let us make our greatest efforts in the reduction of morbidity and mortality rates by fighting with our known weapons, making a uniform effort to control the unsettled diseases until the correct way is really discovered. Disease and its remedy have gone through many stages, "First as an evil spirit or the work of such a spirit to be placated by burnt offerings; further association of ideas led to the belief that disease was produced by a human enemy possessed of supernatural powers, warded off by appropriate spells similar to those employed by the enemy himself."

The eighteenth century was the age of theories and systems. The nineteenth century was the age of organized advancement of science. The twentieth century was the age of preventive medicine. Today we are nearer than ever before an exact science; we no longer live in the land of mystery or magic; no longer is the public held aloof. The veil of mystery has been lifted; the public has been taken into our confidence and that confidence can only be maintained, and co-operation best conserved, by working hardest along known lines and asking its aid in fathoming the uncertainties.

SMALLPOX

To illustrate, Jenna, in 1796, through vaccine virus, gave us an absolute protection against smallpox, a loathsome, terrorizing, highly-contagious disease, which at one time almost completely annihilated entire towns. In 1774, an epidemic attacked Chester, in England, leaving only seven in every hundred unharmed. Whole tribes of Indians were wiped out by its malignancy. In England and Wales, in 1853-70, compulsory vaccination was feebly carried out; result, 32 per 100,000 died. In 1870-90, the vaccination law was enforced; result, 1 per 100,000 population died. Vaccination and re-vaccination prohibit smallpox, yet in 1909 733, in 1910 428, and in 1911 2,484 cases developed.

Yet, may I ask, how many counties and cities have laws requiring compulsory vaccination of the children before entering school? Again, may I ask, how many of these towns having such laws enforce them? Asheville, N. C., has such a law, and no child can enter school who has not been vaccinated. An accurate record and close inspection of each child before entering school has resulted in eliminating smallpox for the past two years, barring an imported case and contacts with non-residents in whom self-preservation is the last law observed.

	Cases	Suspects
July 8, 1900, to Aug. 22, 1901	109	26
Jan. 24, 1902, to Mar. 5, 1903....	192	74
Total	301	100

	Local	Imported	Total	Deaths
1912	25	0	25	0
1913	69	0	69	0
1914	46	0	46	0
1915	*3	1	4	0
1916	*5	2	7	0

*Contact non-resident.

To stamp out smallpox there must be adequate and uniform laws; then vaccinate peacefully if you can, but vaccinate. Compulsory vaccination, isolation, and fumigation are our known weapons,—use them.

TYPHOID FEVER

It has been said: "For every death by typhoid fever, some one is guilty of murder and should hang for it; and when humanity discontinues the consumption of its sewage, then will typhoid fever cease." Typhoid vaccination, pure water, clean milk, wrapped bread, sewage protection, sanitary closets, extermination of the fly in the house by screening against it and fighting it at its home, the stable, avoiding the contagion by care of the patient's excreta, and scrubbing the hands after attention is given the patient, and being always on the alert for carriers, will protect against typhoid fever. We know by the above methods that we can eliminate typhoid fever. Why, may I ask, should we wait, as we have in smallpox, 173 years to accomplish this result? Let's go on record at this meeting as endorsing the vaccination against typhoid fever and set about to use our influence in having en-

acted adequate and uniform compulsory laws. Typhoid fever caused 10,185 deaths last year,—rate 15.4 in every 100,000 population.

We have not this compulsory vaccination law, although it is being favorably discussed in regard to school children, but by the great good accomplished by our County's Health Officer, Dr. D. E. Sevier, who vaccinates all who volunteer, and our painstaking efforts to minimize all sources of infection, we have not had a death of origin in the past two years.

STATISTICS

	Local	Imported	Total	Deaths
Oct., '11-Oct., '12..	6	7	15	0
1913	13	10	23	1
1914	8	14	22	1
1915	6	8	14	0
1916	8	29	37	0

With proper facilities every health officer should feel embarrassed when there occurs a case of typhoid fever in his territory that can not be traced to causes of which he has no control. The municipal authorities who do not furnish ways and means with which to prevent typhoid fever should be held liable for the disease. They are now held responsible for "pitfalls" in the street or sidewalks that cause injury to the innocent passerby; just so they should be held responsible for similar "pitfalls" in the water or milk supply that cause injury to the innocent partaker.

DIPHTHERIA

In 1914 there were 11,786 deaths, the rate being 17.9 in each 100,000 population. Diphtheritic antitoxin has saved numbers of lives; how many cases of illnesses it has saved it is hard even to estimate. We know that in diphtheritic antitoxin we have a specific. We know that with it we can become immunized for six weeks. We know that we can tell with accuracy whether or not a given case has diphtheria. Then why not go on record as advocating the compulsory administration of diphtheritic antitoxin to all clinical cases, and an immunizing dose to all contacts, and again compulsory laboratory cultures in all suspected cases?

For the sake of brevity we shall not discuss rabies, cerebro-spinal meningitis, typhus fever, poliomyelitis, allowing the three above-mentioned diseases to illustrate what has been accomplished, and what more could be accomplished.

Now let us take up the management of the diseases of unknown specific treatment which are best controlled through prevention, through early recognition, isolation, quarantine and through disinfection.

TUBERCULOSIS

Enthusiastic praise and strong encouragement should be given those seeking a true specific in the treatment of tuberculosis. However, at this time there is no remedy available. Through the use of tuberculin, autoginous vaccines or their allied products, much harm is being done; and it is astounding to think of the number of us who do not appreciate the dangers of the use of tuberculin. The use as well as the abuse of tuberculin is strewn with danger, and a less dangerous substance should be used if such is advisable.

It is far better to work through prevention rather than cure. Teach the laity that we are all tuberculous to a greater or lesser degree, and that the careful physician warns us in time to ward off an active form.

Change the mental attitude toward the word tuberculosis; let them realize that all of us are fighting tuberculosis, and those who are fortified best maintain their resistance best.

The doctor's attitude should undergo a change; he should realize that the supposed shielding of his patients by not telling them the suspected truth only brings discredit upon himself, and often death to them.

Change of mental attitude, prevention and early diagnosis are the sure avenues to success. Do not fear the patient,—from him there is no harm,—the bacilli (infective matter) are in the sputum and therein lies the serpent. A rigid enforcement of the anti-expectoration ordinance, the use of the sputum cup and burning it, the reporting of cases and fumigation of rooms are our best adjustment in the present evil. Superficial information is dangerous and this, coupled with ignorance, is the cause of phthisisphobia or the inordinate fear of tuberculosis. It is

well to beware, but foolish and cowardly to shun. A hint to the wise is sufficient.

	Local	Imported	Total	Deaths White	Deaths Colored
1912	....	....	2	2	2
1913	22	75	97	8	14
1914	14	105	119	2	12
1915	15	120	135	5	10
1916	15	110	123	5	8

TUBERCULOSIS STATISTICS

	Cases	Deaths Entitled to	Saved
1913	22	36.2	1 4.2
1914	14	36.2	2 2.2
1915	15	36.2	2 1.2
1916	13	36.2	2 3.2

Asheville population, 25,000. Colored, one-fourth; white, three-fourths.

1913—White	8x5.5— 44 in 100,000 population
Colored	14x16—244 in 100,000 population
1914—White	2— 11 in 100,000 population
Colored	12—192 in 100,000 population
1915—White	5— 27 in 100,000 population
Colored	10—160 in 100,000 population
1916—White	5— 27 in 100,000 population
Colored	3—144 in 100,000 population

Is this knowledge and actual experience (and I challenge its dispute) worth anything to you, and is it worth anything that by the above methods it saves 23.2 deaths from one cause, and that cause tuberculosis? This is not the result of one year: it has been done for several years. What has been said of the preventable diseases named can be exemplified in part with any other preventable disease. "Prevention is greater than cure," and notwithstanding the horribleness of the thought it would be of far more benefit to mankind to use the public funds in prevention and control rather than in the cure.

MEASLES

Measles caused 4,461 deaths, 6.08 per 100,000 population, in 1914. Scarlet fever caused 4,334 deaths, 6.06 per 100,000, in 1914. In measles, as in scarlet fever, the disease produced seems to be due to a specific virus the nature of which is yet unknown. Anderson and Goldberger demonstrated, in 1911, that measles could be produced in the monkey by inoculation with blood from human cases provided the blood were taken before or shortly after the period of the eruption. The virus is present in the nasal and buccal secretions up to the time of convalescence, when its infectivity disappears. The desquamation does not carry infection (Arken, Am. J. Pub. Health, April, 1916).

	Local	Imported	Total	Deaths
1914	57	0	57	0
1915	1	0	1	0
1916	83	0	83	0

SCARLET FEVER

Early in 1911, Cautacuzen and Bernhart produced scarlet fever in a similar way. Most writers of recent date claim that the disease is transmitted by direct contact and early in the course of the disease, and that after convalescence and during desquamation the cases are not infective.

Are we ready for this advancement? I am frank to admit that I do not know. But I would like to know whether or not you think as a body that the time has come when we may release these cases during the period of desquamation, when convalescence is well advanced and there are no complications? At least, let us have some uniform action in the matter. In early recognition and isolation, best results are obtained. Then teachers should be instructed to send children home who have sore throats, swollen glands, sore eyes or skin eruptions, immediately notifying the parents and health authorities, who will carry the cases to their ultimate conclusion regarding etiology and sources of the trouble.

	Local	Imported	Total	Deaths
1912	18	0	18	0
1913	17	0	17	0
1914	22	0	22	0
1915	32	0	32	0
1916	35	0	36	0

DISINFECTION

Dr. B. F. Knause, New York City Health Department, summarizes as follows:

"1. There is a certain proportion of cases over which there is no administrative control.

"2. Mediary disinfection is a most important factor, neglected both by the attending physician and Department of Health, and is entitled to much greater attention and strict supervision.

"3. Terminal disinfection by cleaning and renovation are desirable from a psychological and sanitary view, and in certain diseases, like tuberculosis, renovation should be strictly enforced.

"4. Terminal fumigation is a costly procedure, the method and reliability have no weight, as the necessity for a procedure of this kind is an admission of improper isolation, imperfect mediary disinfection or improper termination. As a factor in the control of communicable diseases it is of negative value."

He further states:

"The immunizing of persons exposed to diphtheria and typhoid fever, the destruction of vermin in typhus fever, of rats in bubonic plague, all tend to minimize the value of disinfection in these diseases."

Established immunity and the destruction of vermin and rats do prevent to a great extent the spread of disease. But why not be thorough and use all known means; why is it not just as important to destroy the germ life in a room as that in the mucous membranes, when typhoid fever bacilli live in water from 7 to 50 days; in milk from 1 to 3 days; in dirt about 70 days, multiplying outside the body; when diphtheria bacilli live in water an unknown time; in milk 72 days; in dirt 40 days, and do not multiply outside the body; and when tubercle bacilli live in water; in milk (bovine) indefinitely; in dirt from 1 to 80 days, but outside the body do not multiply?

Knause lays particular stress upon mediary disinfection, and I take it that terminal disinfection is purely psychological. Again he insists upon renovation following tuberculosis. Why is it essential to insist upon terminal disinfection after tuberculosis and not after other infectious diseases when it is admitted that germs other than those following tuberculosis remain in the room occupied by those suffering with infectious diseases?

Again he concludes that terminal fumigation in the control of communicable diseases is of a negative value. In answer to this point in regard to fumigation, I shall quote the following from Rausnau:

"So long as we possess such a reasonable, efficient and satisfactory substance as formaldehyde, terminal dissinfection should be practised after all diseases in which the environment may become infected, even though the danger be slight."

Again he says:

"While the results of scientific investigation in the laboratory must be our guide, we can not ignore the results of experience in actual practice in combatting the communicable diseases."

Sulphur was long recognized as a valuable disinfectant in yellow fever. Scientific tests in the laboratory showed sulphur dioxid to be a very poor germicide. Now that we know that sulphur is one of our best insecticides, we realize its value in yellow fever, and confidence is restored in the laboratory and in practical experience. "The proof of the pudding is in the eating!"

In my experience in health work for twenty-one years I have never had a repeat case in the room where fumigation was done. Fumigation, then cleaning, rather than cleaning followed by fumigation, has been my motto. Disinfectants during the course of the disease of all secretions, all will admit is of foremost importance. Are we ready to abandon fumigation, our supposed greatest terminal weapon against the recurrence of disease? Will fumigation destroy the germs? Are there any terminal germs?

ADVANCES IN PUBLIC HEALTH WORK IN SOUTH CAROLINA DURING THE PAST YEAR*

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Secretary, South Carolina State Board of Health,
Columbia, S. C.

The most important advance that we have made has been our admission into the registration area of the United States with the installation of our Bureau of Vital Statistics. We succeeded in establishing this Bureau two years ago, and with an appropriation of $5,000 the first year, we succeeded in getting a death rate report of 15 per thousand,—about 90 % of the deaths which occurred in the State. The next year we were able to make the United States Government admit that we had recorded the 90 % of deaths requisite for admission to the registration area; and I'll give you a little pointer. Some of these states that are possibly trying to get into the registration area, just claim that you have 90% of the deaths recorded and then ask the United States to prove that you haven't the 90%. It's much better than trying to prove it yourself.

Now, it is very simple to establish a bureau of vital statistics, because a model law has been worked out, and if that model law is adapted, the mistakes that have been made by other states can at once be rectified. Do as we did: steal your system bodily from Virginia, modify it

*Read in Section on Public Health, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

with a little tip from North Carolina, eliminate the mistakes of both states and you will have what we have—an admirable bureau of vital statistics.

The next thing I think we have been successful in doing is the establishment of the Tuberculosis Hospital for the State. That's only on a very small scale at present. We have in mind a scheme by which it will be increased by units. Each unit consists of a ward that will take care of sixteen patients, and each year we ask the Legislature for one, two, three or four units, depending upon the grasp we think the Legislature has of the importance of the Tuberculosis Hospital. It requires a great deal of careful canvassing of the members of the Legislature to determine whether they have this needful grasp of the necessities of the State.

We have also made progress in the fact that we have two county health officers, two whole-time county health officers. Now, we differ somewhat from our neighboring state of North Carolina in some respects. We believe that the State Board of Health as created in South Carolina should carry out the terms of the act creating that Board of Health, namely, that it shall be the sole adviser of the State of South Carolina in matters of health, in matters pertaining to the health of the citizens. We, therefore, have been able, where we have had whole-time health officers elected, to have the act so written that the State Board of Health has the selection and election of that officer, and makes the rules and regulations governing his conduct while in office. Nobody else has the right to remove that officer should he not be competent. This immediately takes him out of local politics, makes him able to do his duty fearlessly, knowing that he has only to prove to the State Board of Health that he is doing his duty, and not to every one in the county who may have an axe to grind or whose ox he may gore. This, we think, has been effective; but we have only been able to do this in two counties,—Richland and Greenville.

That county health officer inspects all the school children in the counties. The Richland County Officer has made an inspection of all school children two years in succession. He was able this year to determine how many of them he had inspected last year had complied with the recommendations made to the parents. He found that 22% had gone to physicians and been relieved of the troubles that he had reported.

We hope this year to have more whole-time health officers. We hope to have this done, though, only by bills introduced by the delegation from the county asking for such an office and passing a separate bill for that purpose. We don't believe that a general law passed by the Legislature would apply to all the counties in the State, each county having different ideas as to how things should be done, so that when a county wants a whole-time health officer it can have its delegation pass it as a local bill in the Legislature, and as a local bill it will have no opposition from other members of the Legislature.

Great work has been done this year by the United States Government. The United States Government took Greenville County and carefully, by intensive work, educated the people of that County to the necessity of rural sanitation; and their work is bearing most excellent fruit. You'll remember it is one of the largest manufacturing counties in the United States. There are about fifteen million dollars' worth of money invested in cotton mills immediately around the City of Greenville. It has the largest number of spindles of almost any county and has a large number of operatives, and yet there are only two single mills which have not built sanitary closets for each one of its mill operatives. Greenville, the City itself, are completely sanitated, and have not an unsanitary closet in the City, a City of perhaps thirty thousand people. Richland County has succeeded in doing this with one County Health Officer. There were very few rural schools that had any sanitary closets at all. Some had no closets of any description. Now there is not a single white school in Richland County that has not a sanitary closet for the boys and girls of the school.

We are also having in the State community units working on the intensive plan, which has been outlined in the meeting. They work for three or four months in the County and have done so for the past two years. This we owe in part to the Rockefeller Commission and in part to funds provided by the State. Half of the

money is provided by the Rockefeller Commission and the other half by the State.

We have this year been able to get out a rather remarkable exhibit for the State Board of Health work, which we have sent to the different fairs — State fairs and county fairs—and with these exhibits we have sent a man trained in talking,—not myself,—who has been able to talk to the people and distribute the literature of the Board of Health and get them interested in the subjects.

Another, more important, perhaps, than any other progressive movement of the State Board of Health has been the establishment in our Laboratory of facilities for doing the Wassermann test for our fellow citizens. This has been done for the first time this year, and Dr. Coward, our Laboratory Director, is here and can speak better about it than I am able to do. He can show you that the cost has been so little that it has not even increased the sum which we set aside for our Laboratory, and that sum is a very small one. Any state can do this that wishes to do it, and it will certainly be of great assistance to the citizens and to the doctors in the state. The specimens sent amount at the present time to about fifteen hundred, of which about 25 % have been positive. I think that's about all that I can say that we have done in South Carolina.

We have an appropriation of $56,000 for all purposes. We give away diphtheria antitoxin to all citizens of South Carolina, whether rich, poor, white or black; and we give typhoid bacterin to all citizens, free. We give vaccine virus to all citizens of the State free. We do about seven or eight thousand examinations of miscellaneous specimens for all diseases. We do this free. In fact, there is nothing that is charged for there except the services of the Health Officer and his assistants, and their charges, for the good that's done by them, is exceedingly small.

THE COUNTY UNIT PLAN IN PUBLIC HEALTH*

By M. M. McCord, M.D.,
Commissioner of Health, Floyd County,
Rome, Ga.

There are several reasons why I selected this subject: one, because, I know more about the county plan, inasmuch as we are operating this system in Floyd County, Ga.; and I also have observed the work in other counties; and another reason is that I firmly believe that if the Sunny South ever makes such strides in disease prevention as to measure up to its opportunities, the work, while general in nature, must be local in its origin and activities.

Just at this juncture, I desire to acknowledge credit to Dr. Carl A. Grote, Health Officer, Walker County, Ala., for the inspiration he gave us in launching our health program in Floyd County, Ga.; to our most efficient Secretary of the Georgia State Board of Health, Dr. H. F. Harris, for his scientific and practical methods he so cheerfully submitted to us in the organization of our work, and to Dr. L. L. Lumsden and his very able corps of men of the United States Public Health Service, for their faithful and efficient services rendered us during their eight months' sojourn in making a full sanitary survey of our County this year.

In going into details about the County Unit Plan, I beg to say that I have the highest regard for our state boards of health. They are essential, and they have a work to do that the individual counties can not do. Besides, it seems reasonable and right that a state board of health should maintain a centralizing office over all the county boards of health in each state and be supreme in power and authority over the unit boards. But I do not believe it is possible for any state to place enough funds with its state board of health to carry on the work over the state at large so satisfactorily and successfully as for each county to be a unit and operate its own local board.

If local option, as it relates to the whiskey question, is a wise law, as some think, then certainly, in reference to disease, it

*Read in Section on Public Health, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

is the correct solution. Sentiment is law, whether written on our statutes or not. You may pass a state law on public health, and part of the state will be loyal to the law. But while that is true, there will be a great portion of the state that will not be in sympathy with it, and so far as they are concerned it had just as well never have been made law. Under the County Local Option Plan, similar to the Ellis Public Health Bill in Georgia, it is necessary for the people to want it and be willing to be taxed to maintain it before such a law is in operation. A sentiment in such a county, when once sprung on the people, grows in favor of an organized system on public health. When the law is adopted in the county there is a strong sentiment behind the move and the work starts off under most favorable circumstances.

The old plan that most of our counties throughout the South yet follow is for the county physician, on a small salary, also to act as county health officer. There is practically no benefit to be derived from such a plan except when there might perchance be an epidemic of some contagious disease and a quarantine needed. Each county should have a hustling, full-time county health officer, for it is a full-time job if a man does his duty. He should also be paid a respectable salary if you expect to demand of him a respectable service. There is something also for the county health officer to do besides quarantine. He should be so well on his job in educating the people on the vital principles of sanitation that he can almost through the misty future see the time when even a quarantine for anything will be seldom.

The first thing, then, necessary is to create a public sentiment in each county for a county board of health and a full-time health officer. How can this be done? There is only one right way for it to be done, and that is through the local physicians. If the local physicians of any county will unite in their efforts, they can put a board of health to work in a very short time. They have a world of influence if they would only use it. Usually, the medical man who attends medical societies and associations is very enthusiastic in the merits of public health work. He is willing to concentrate his energies on any progressive move for his people; but the fellow who stays at home, never attended a meeting of medical men nor took a post-graduate course in any hospital or medical school in all his life, is the fellow who generally puts a halt to all such progressive moves; he is not progressive himself and knows very little more about the matter than some of his ignorant friends. But they think that "Old Doc'" is all right and knows it all, when, in fact, he has not stumbled over a new idea since he left school, unless some more progressive man "handed him one" in some case of consultation. It is very unfortunate that such a very large percentage of our doctors are not progressive, for their influence seriously retards progress in their communities. Such men usually have, as a rule, more influence than our progressive men, for the reason that their attitude is more in harmony with the common tax payer.

What shall we do? It really seems that the first step to take is to do some missionary work with the indifferent of the profession; have a banquet, if necessary, and have every physician in the county present. Most doctors will go where there is something to eat. At this meeting bring up the subject of the county's inaugurating a system of public health; read reports from counties where such work has been going on; get some well-informed man to deliver a talk upon the subject and explain just what the work is and the duty of each physician in such a work; and then get expressions from all present. If you get the physicians of your county, as a unit, in the matter, there will be no opposition to the move, and then when the work is launched, every physician in the county will stand behind the health officer and aid and assist him in every possible manner in getting the desired results.

Every county board of health should have a laboratory, prepared to examine milk, water, blood, sputum, throat cultures, etc. The rural physicians are not getting the benefit of a laboratory aid in making their diagnoses on account of the inconvenience in sending to the state board of health laboratory. The public is not becoming awakened so rapidly as they should to progressive steps, looking to a safer food and water supply, on ac-

count of not being in a position to know their real condition. All health work in the county, of every description, should be under the county board of health. A county board of health, equipped with a laboratory to do all ordinary bacteriological work, would not only inspire local physicians to be more accurate in making diagnoses, but would likewise be a great stimulus in causing the public to demand a more scientific diagnosis, and furthermore, would educate the public to the need of a purer food and water supply. Neither the physicians nor the public will ever become enthusiastic for things more progressive in conserving the health of the people 'till they become educated up to it. When every county in a state becomes a unit of active measures for disease prevention, and each unit striving to become more efficient every year in public health administration, then the state board of health will have a unit of influence behind it. If an appropriation by the legislature is needed to further the health work of the state at large, it will not be necessary to have a dozen lobbyists hanging around the capitol.

The principal reason public health work is not any more popular in some of our Southern states is because the people and very few of the physicians know anything of the merits of such a work. Therefore, knowing nothing about it, they feel that taxation for such a move is money thrown away. It is no trouble to get appropriations for schools, colleges, public highways, agriculture, etc., for the people have been taught by years of experience how to appreciate these things. But mention a proposed bill that has for its object the conservation of health and life of the citizens of the commonwealth, and the proud legislator gives you a grin so dry that it would completely devour an oasis in the desert of Sahara. Why? Because, in the first place, he knows nothing about any progressive measures along any line; and, in the second place, he has not seen enough of sentiment manifested at home for him to feel that his support to such a bill would give him any votes on his next election day. Usually, for the common legislator to go home and be able to get up at "Pumpkin Hollow" and make a speech and say, "I voted against the bill to appropriate our tax money on public health" brings forth a great applause, and some old "skin-flint" says: "Boys, we must send him again, for he is sure saving our state money." As a matter of fact, the killing of that bill probably meant the killing of many innocent lives that could possibly have been saved if the proposed appropriation could have been used to fight disease. It is getting time that the live members of our profession develop some influence at home. If we can not elect the right man as a member of our lawmaking body, we should create such a sentiment among his voters that he will not be afraid to do the right thing.

Each county should launch the move and use every available opportunity to keep the public posted on the most progressive steps that people should take to prevent disease and conserve the health of its citizens. There is no better way to emphasize the importance of health work than in our public schools. The county health officer should visit all the public schools in the county, lecture on sanitation and hygiene and examine all pupils for physical defects. A report of defects found should be made to the parent, with a request that such child be submitted to the family physician or dentist for further examination and consultation. This work in the schools will certainly make an impression on the mind of every child that will without doubt bring forth the best of results in bettering health conditions in years to come.

I believe we all are agreed that the most valuable work we can do along the line of public health is strictly educational. There is no better place for that to begin than in the homes and schools. Is it right for us as progressive medical men to sit idly by and let preventable diseases strike down their thousands every year in the Southland, when, by a little effort, a little sacrifice on our part, we can have forces lined up in our different counties that will mean the actual saving of human life in great numbers? It is time that we get busy in this line. The future manhood and womanhood of our country demand it; the calls of humanity demand it; a hundred thousand babies who will die of preventable diseases during next year are calling for our help; our Army and Navy are calling for healthy men; our homes are calling for healthy mothers. There is

a call in every passing breeze. Shall we answer the call?

Editor's Note.--This paper was discussed in connection with "The Role of the County Health Officer in Public Health Work," by Dr. T. M. Dye, Clarkesdale, Miss., and "Public Health Administration and What Has Been Accomplished in Glynn County, Georgia," by Dr. T. F. Abercrombie, Brunswick, Ga. The last named paper, together with all the discussion, will appear in a future issue.

AUTHORS' ABSTRACTS

Medicine

(Continued from page 397)

Eczema in Children. George W. Crary, New York, N. Y. New York Medical Journal, December 30, 1916.

A diagnosis of eczema is to be made only after the exclusion of every other known form of dermatosis. The etiology of such an eczema, often obscure, nearly always mixed, will be classified as of internal or as of external origin, according as the causes are predominantly internal or external. In children under two years, an extensive eczema of purely external origin is rare, while local eczema of purely external origin are common at all ages. The external, determining cause is commonly bacterial, but not specifically so. The internal, predisposing cause, more particularly in children, is usually the fermentation of an indifferent food in the gastro-intestinal tract, or an anaphylactic skin reaction to some particular article of food.

The occurrence of eczemas of reflex origin, from such conditions as dentition, and in female children, especially, from adherent prepuce, must be admitted. It is improbable that the cure of an eczema, be it ever so rapid, could ever endanger the life of the infant.

Eczematous infants are commonly overfed, and usually the first step in the treatment will be a cutting down of the total amount of food taken, to somewhere within the caloric requirement, and the elimination of those articles of food which have been proven in other cases to be capable of giving rise to anaphylactic reactions. The author forbids eggs and sugar; Freeman prohibits stewed fruits and cream; and both he and Southworth advocate the introduction of malt soups into the dietary.

The external dressing should be protective but absorbent, and a paste rather than an ointment should be employed, and as these skins are generally intolerant of any fat, it is best to employ as the base an iceland moss jelly ("K-Y"), and to obtain a mild antiseptic action add from 1 to 3 % of the monoacetate of resorcin (Euresol) and 5 to 10 % of ichthyol. Later, when merely the protective is needed, the K-Y lightly applied and powdered with a neutral powder serves well; but at the flexures of the joints this must be softened with white vaseline to allow free movement of the joints without fissuring of the skin.

The Therapeutic Value of the U. S. P. Tincture of Iodin in the Treatment of Tuberculosis and Other Infectious Diseases, When Properly Administered and Given in Progressively Increasing Doses. John Ritter, Chicago, Ill. Illinois Medical Journal, Vol. XXXI, No. 2, February, 1917, p. 94.

Tincture of iodin, 'though an old pharmacopeal remedy, has never been extensively used for internal medication. The National Dispensatory gives the dose as two to three minims and states that large doses produce severe gastro-intestinal irritation, accompanied by vomiting, diarrhea and collapse. That these doses may be exceeded and the tincture given in enormous doses without any untoward effect, has been repeatedly demonstrated. This was clearly set forth by many internists, particularly of the French school; and Dr. L. Boudreau, Bordeaux, France, has given large doses for more than ten years, and highly recommends its systematic and intensive trial. There is no doubt that the giving of the tincture in progressively increasing doses has a decidedly beneficial inhibiting and even curative effect in all diseases due to the action of bacteria. Possessing highly bacteriacidal properties without any body tissue disturbance or irritation, it can be given freely wherever bacteria are the underlying causes of the body disturbances. In cases of pus-formation for the removal of an inflammatory exudate in acute and chronic pleurisy, tuberculous peritonitis, in any stage of pulmonary tuberculosis, in fibroid phthisis, in glandular tuberculosis, in unresolved pneumonia, as well as in the acute stage, in erysipelas, in multiple abscesses, in osteomyelitis, in streptococcic and staphylococcic infection, in whooping cough, in scarlet fever, in measles; in fact, it is indicated wherever inflammatory conditions exist. The method of administering consists in giving the tincture in a bland vehicle, milk. Beginning with one drop at the first meal, two drops at the second meal, ten drops at the tenth and so on until 20 or 30 drops have been given, according to the discretion of the prescriber, then remaining at this point for a few weeks, when the dose can be gradually increased in the same minim method until 50 or 60, or 100 drops are given. This maximum dose can then be maintained almost indefinitely, giving it three times a day, before, with or after each meal. In acute infection, like erysipelas, 20 drops may be administered in milk once in three hours, until all acute symptoms have subsided. There is no advantage over the plain old-fashioned U. S. P. tincture of iodin in giving any of the various preparations, quasi-proprietary, even pharmacopeal. It matters not in what form or combination—organic or inorganic—that iodin is administered, the end results will always be the same.

SURGERY, GYNECOLOGY, OBSTETRICS AND GENITO-URINARY DISEASES

HYSTERECTOMY FOR FIBROIDS*

By H. A. Royster, A.B., M.D., F.A.C.S.,
Raleigh, N. C.

I think it is well now and then for us to take stock of our established procedures in surgery and to inquire whether they are justified by the results or whether we should change them for other forms of treatment.

Almost every surgeon is competent to do hysterectomy for fibroids, because they are the most common of all uterine growths; and because they present themselves to every surgeon, whether he is doing a special line of work or whether he is engaged in general surgery. These operations are done by surgeons over the whole world. Recently, however, there have appeared advocates who are for substituting other forms of treatment,—palliative or temporary, all perhaps untried,—for the operative cure of these tumors. Therefore, it may not be amiss to present some deductions from my own experience in the operation of hysterectomy. This experience extends over fifteen years, most of it being obtained in a hospital exclusively for colored people. What I shall have to say is based entirely upon that personal experience, without reference to the work of any other operator, and without consulting the statistics of any other reports.

Whatever we may say about the matter, it appears to me that at the present time there has been no other treatment which may supersede the operative removal of these tumors, both in the relief of symptoms, in the mortality of the procedure, and in the after results. I shall discuss the subject briefly under three heads, into which it seems naturally to divide itself: (1) Indications; (2) Methods; and (3) Results.

*Read in Section on Surgery, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

INDICATIONS

Usually the indications demanding operation in the case of fibroid tumors of the uterus are fairly clear. We are told that the three cardinal symptoms are hemorrhage, pain and discharge. But so are these the cardinal symptoms of many other pelvic conditions, and we have to qualify these, or subdivide them, if we are to understand the indications clearly. The hemorrhage in the case of a fibroid is a menorrhagia, as a rule. Many times in carcinoma of the uterus the hemorrhage begins as a menorrhagia, but rapidly becomes a metrorrhagia. In the case of the fibroid this practically never happens, although one period may be so long as to overlap the next one,—almost a continuous menstruation. The pain is significant, either as the cause of dysmenorrhea, as intermenstrual pain, or as certain vague and reflex pains connected with the tumor. The discharge is the ordinary leucorrhea, perhaps magnified and changed; and it is said to be due to the stimulating action of the fibroid upon the utricular glands. At any rate, when these symptoms are defined, there is a clear indication for the removal of the tumor.

We must remember, however, in all diseases cardinal symptoms may sometimes be terminal events, and that, before these ordinary symptoms appear, there may be conditions indicating the presence of the tumor and calling for operation which did not precede the symptoms in this group. For instance, we have heard a great deal about the "symptomless fibroid." Whether it is a symptomless fibroid or whether it is our ignorance in interpreting certain phenomena may be a question. It is the same old story of "innocent gallstones." Sometimes it is the innocent doctor!

The symptomless fibroid may be a growth which presents no local symptoms, but which may present a great many general symptoms; perhaps reflex ones. One of these may be noted in the condition known as the "fibroid heart," which is not exactly understood. Most pathologists put

this down as a brown atrophy, the heart being one of the few organs in which this pathological change is exhibited. It may be a functional cardiac neurosis, whatever that is; or it may be an infection, engendered by the fibroid and its complications, which produces a myocarditis. But whatever the condition may be, there are cases presented to the average physician in which the first, and sometimes the only, symptom is a palpitation of the heart, or conditions simulating that. Many cases of fibroid tumors have been discovered because they presented certain cardiac symptoms. An acute diagnostician in the presence of such symptoms immediately examines the woman's pelvis. On the other hand, usually a sufficient indication for the removal of a fibroid would be the recognition of its presence, either by the physician or by the patient. In most cases, if the fibroid is large enough to be recognized by the patient, it would be an occasion for operation. She would recognize it because of pains and pressure or solely because of its size. Certainly the surgeon should then recognize the indications for the operation.

METHODS

Methods of removing a fibroid tumor are not to be considered as fixed in the light of fixed ideas. Every man who operates for these tumors should find out the best and the easiest way for him to do it, and to follow that method until he has made himself expert in it. Furthermore, in each individual case he might choose a different type of operation from that which he did in the preceding one or in the subsequent case. There are all sorts of methods. The method to be chosen is one which is founded upon three "S"'s: "Safe," "Simple," and "Speedy." If we put another "S" at the top and another "S" at the bottom we have the whole system of surgery: "Surgery, Safety, Simplicity, Speed, Success." If we apply that to the fibroid tumors we are not going to need any particular method. And let us understand, when we are doing an operation of any kind, that we are not doing the "Smith" operation, or the "Jones" operation, but we are doing our own operation, if you please, according to the Smith or the Jones method.

Now, the question of whether we shall make a continuous suture around the broad ligaments, whether we shall double-ligate the vessels, sew up the cervical canal separately, drain because of a little blood in the cavity, or whether we shall start on one side or the other,—all those things remind me of those who waste breath upon the subject of the treatment of the appendix stump. We all do different methods, and we all get the same results. It would be the same exactly as if we should stand here and argue about the method of opening and closing the abdominal wall. These things are automatic to the experienced surgeon (they ought to be), and all he is concerned with is the principle rather than any particular method.

The chief things to call attention to, I think, and emphasize, are, first, as perfect a hemostasis as possible; and second, speed consistent with safety. I have seen many a patient bleed to death afterward because the operator was not careful enough. And I have seen several patients die on the table because he was not fast enough. We have to steer between those two extremes.

RESULTS

The results must be measured by the operative mortality and the after effects, which are determined by the restoration of the patient to health, and by the fact that the operator attended to every condition which was present and involved in the operation. Some of these results will depend upon the choice of cases. We are told that when the hemoglobin is down to a certain percentage that the result of the operation and the ultimate result will not always be good; but we see these rules constantly broken every day. We see patients with a hemoglobin of 85 do very, very poorly under the operation; and we see some as low as 25 or 30 come out of the operation very well, with no bad result. So that there, again, the individual patient and the individual operator's experience must be the guide. Personally, I believe that it is much better in the cases in which the operation seems at first to be contraindicated by some physical disability not to delay too long to operate in the hope of building up the patient. Most of these cases can not be built up until the tumor is removed. It is like pouring water through a funnel to attempt to build them up beforehand. You may pour into the patient lots of things to build her up,

but if there is a wide-open mouth at the bottom you are getting no effect. If we take the risk and do the operation well, we can build the patient up afterward.

Again, two other points in the operation,—the degenerations of the tumor and the complications in the pelvis outside of the tumor. Malignant degenerations form about 18% of the degenerations of fibroids. Rarely is a fibroid tumor complicated by cancer of the cervix, more often by cancer of the fundus of the uterus; and it is not, in that case, a degeneration of the fibroid into cancer, but a complication, due to the fact that the presence of the fibroid at the fundus lowers the resisting power and so leads to the production of the cancer. Usually the women who have fibroids have had no children, and in the case of cancer of the cervix the average woman has had from four to five children. Cancer of the fundus occurs at a later stage in life. When we think of these things our operation should be designed accordingly, if there is any suspicion of cancer.

The complications in the pelvis outside the tumor are largely infections of the tubes. In my cases these have played a large part, because four-fifths of the cases have been in colored women. So in undertaking a hysterectomy for fibroids we must take into consideration pelvic infection, and, of course, clear out everything in that region, allowing no possible chance for secondary infections to arise.

I have here a summary with names and dates of 586 hysterectomies for fibroids done since March 1, 1909. In these cases there are sixteen deaths, giving a mortality percentage of 2.7. The cause of deaths are: infection, 3; thrombosis and embolus, 4; injury to the ureter, 2; shock, 3; hemorrhage, 1; intestinal obstruction, 2; and in one case the cause of death was not discovered.

I present these statistics not for the purpose of exhibiting a low mortality rate, but simply to show the number of cases operated upon largely in a Negro clinic; and to emphasize the fact that the surgical treatment of uterine fibroids compares favorably with—and indeed surpasses—any other form of treatment so far devised.

In conclusion I wish to call attention to the fact that the indications for operating upon fibroids are very plain in most cases; that the methods are immaterial so long as we use the right principles; and that the results will follow if we adhere to those principles.

DISCUSSION

Dr. L. E. Burch, Nashville, Tenn.—Fibroid tumors are innocent in the respect that they do not invade contiguous structures and do not metastasize. At the same time we should look upon the fibroid tumor as a dangerous growth, for the reason that it is likely to undergo one or more serious complications, not only local but general.

Dr. Royster has emphasized the possibility of a "fibroid heart," as he calls it. In addition to this, patients with fibroid tumors are likely to have embolus and thrombus. It is not unusual for them to present renal changes from pressure. They are also likely to have high blood pressure if the case is one of long standing.

There are many local complications that may occur that are quite dangerous. Malignant degeneration is not at all unusual. Inflammation, suppuration and cystic degeneration frequently occur. It is obvious that the woman who has a fibroid tumor and does not present symptoms should be kept under careful observation. We occasionally find in young women a small fibroid that is not producing symptoms. I think it advisable, in these rare instances, especially if the woman is anxious to have children, not to operate, but to observe the course of the condition very carefully. In those cases where the hemoglobin is low I think it is advisable to transfuse before operating. This procedure not only brings up the hemoglobin, but in addition it puts them in a position to withstand shock.

Dr. Royster mentioned in his paper that fibroids produce menorrhagia but not metrorhagia. This differentiation was brought out by the late Dr. Murphy in his clinic. It is a diagnostic point, however, that I do not consider of any great value. The fibroids that we see in Tennessee frequently have both menorrhagia and metrorrhagia.

In regard to treatment, it is impossible to lay down a fixed law, for the reason that every case is different. The ideal operation for fibroid is myomectomy, but there are very few cases where this operation is applicable.

I am sorry Dr. Royster did not mention the X-ray and radium treatment. I consider both of these methods as in the experimental stage. Some few, however, have reported good results. Personally, I do not think that these two methods of treatment will ever be universally adopted, but at the same time I think we should study carefully the results obtained both by X-ray and radium.

I do want to emphasize again the point that Dr. Royster laid a great deal of stress upon in his paper, and that is that fibroid tumors are innocent growths, yet at the same time they postpone the menopause and bring on many serious complications, and the majority of them will demand surgical relief.

Dr. H. R. Shands, Jackson, Miss.—I do not think that all cases of uterine fibroids should be

treated with operation. Where one's experience is largely with colored patients hysterectomy will nearly always be indicated for the reason that most colored patients have a complicating Neisserian infection. In the past five years I have had a number of patients with fibroids who were young women. The main indication for treatment was to relieve the severe bleeding which had reduced them to an extreme degree of anemia. The tumor in these cases being small and the women being young, I felt it to be my duty to have them treated with radium rather than to remove their uteri. The results in these cases were excellent, and on the whole I think better than would have been gotten with operation. The bleeding was entirely checked and the tumor seemed to have stopped growing. I feel that in the future radium will be used much more extensively in the treatment of uncomplicated uterine fibroids.

Dr. E. B. Claybrook, Cumberland, Md.—As to speed and safety, these two words are synonymous as used, if we draw the fine distinction between speed and hurry. Speed does not mean hurry but team work, if you please,—scientific management as applied to operative procedure. I think that always, if everything else is equal, the patient's comfort and convalescence is in direct proportion to the amount of time she has been on the table; and I believe we should get the patient off the table in due time; but never hurry. And I believe we should all have some one keep time on us in our operations. However, we should not bother with it ourselves. I believe if some one keeps time on us and we compare it, I think that without hurrying we can improve the amount of time on the table. The amount of trauma and the amount of time the tissues have been under trauma has a direct bearing upon the results.

Dr. R. A. Barr, Nashville, Tenn.—I do not like to be less liberal than any one else, but Dr. Royster has outdone me in his liberality. He says we may remove any fibroid the patient finds for us. I think the surgeon should be required to find his own fibroid.

The presence of the fibroid is hardly an indication for surgery, in my opinion. It certainly is not a justification of the surgeon's urging operation. If the patient has a fibroid and insists upon its being removed, I do not oppose it; but it is often necessary to use a good deal of argument to get a woman with an innocent-looking and behaving fibroid to have it removed. I hardly think that is right; because they are innocent tumors, although they are subject to various accidents and degenerative changes. A woman, however, who has a fibroid, and who has reached anywhere near the menopause can be operated upon much more justifiably than earlier in life. Many think that the menopause settles a fibroid for a woman. As a matter of fact it makes it much worse.

As to the matter of speed in operation, I do not suppose any surgeon deliberately wastes time. That is something you can talk about, and it is all right to try to get through just as promptly as you can and with regard to the safety of the patient. Of course we all do that. It is much better, though, I think, for a man to be deliberate and not to speed into hurry. I believe in deliberate surgery. Sometimes, as I heard a friend remark this morning, a fellow gets into a tough case. I heard a surgeon operating this morning say: "This is a tough case." We get up against these tough cases and then it is best to be deliberate and not get into a hurry.

Dr. Royster was also liberal enough with us to allow us any technic that we chose. I think, however, along that line that we might occasionally make a suggestion to each other. I only do adominal hysterectomy. In doing a hysterectomy for fibroids I nearly always do a pan-hysterectomy, and if the operation is difficult and I can not safely do a pan-hysterectomy I do a sub-total hysterectomy. If you do not do at least a sub-total hysterectomy you are not apt to cure one of the troublesome symptoms,—leucorrhea. The cervical mucosa keeps up a lot of discharge if you do a high amputation. If the mucosa is removed you cure the leucorrhea and you protect the patient against the possible development of cancer. I believe it is better to make a circular incision around the cervix,—not necessarily to the mucous membrane, but partially through the cervical wall, and take the cervical mucosa out with the body of the uterus. That is easily done and exposes the local field less to infection from the cervical canal than where you cut across and then remove the mucosa separately.

Dr. W. H. Walker, Wichita Falls, Tex.—We Texans do not have $5,000 worth of radium in our pockets to use on these white and especially on Negro patients, and we do a sub-total hysterectomy, especially where they have not had children. In older patients they are prone to cancer and a complete hysterectomy should be done.

Dr. C. N. Cowden, Nashville, Tenn.—You can get the same results by using the hard tube with the X-ray machine. In patients with a hemoglobin of 25 or 30 it is dangerous to operate. If you put the patient in a hospital and use a very hard tube with a leather filter to keep the surface from becoming irritated, in three or four treatments, given every other day, you can absolutely control the condition.

I never did many of these sub-total hysterectomies without having a temperature result afterward, and many others have the same experience. I have been thoroughly dilating the cervical canal and not closing it up as I used to do, and in the last seven or eight cases I have not had a bit of temperature.

I do not believe we are justified in doing a pan-hysterectomy in these conditions, because we leave a little pouch in the vagina and after effects are not so satisfactory. You obviate the shortened condition of the vagina. I believe the subtotal in all those cases where we can do it is much better.

Dr. Jos. A. Danna, New Orleans, La.—I would like to sound a little note of warning to those of you who have not had any experience with either radium or the X-ray, and that is as to the possibility of the effect of the radium and the X-rays upon the ovaries. We know that in the early abdominal surgery we removed the ovaries without a knowledge of what the after-effect was going to be, and we know that nowadays we are very careful about the cases in which we did re-

move both ovaries; and I believe experience has taught some of us that the use of radium and the rays does destroy the function of the ovaries.

It is not necessary to do a hysterectomy on every case of fibroid, and I want especially to lay stress upon the operation on these patients with a small fibroid—these young women—the cases that Dr. Shands especially recommended for the X-rays and for radium. Those are cases distinctly for early operation before the fibroid has become of such a size that it requires a hysterectomy; and if you will attempt in these cases to enucleate fibroids you will be surprised at the success that you will have. If the fibroid is in the wall of the uterus, split the wall up; if it is in the cavity of the uterus, slash the uterus open, as you do in a Caesarean section, and you will be surprised at the ease with which you will be able to take these fibroids out.

Dr. John W. Price, Jr., Louisville, Ky.—I want to go on record as being thoroughly opposed to the use of any other than operative treatment of fibroids. I do not think that all cases of fibroid need a complete hysterectomy. I think that the operation of myomectomy is the one of choice, but it can not always be done. I think where there are multiple fibroid tumors in the uterus it is wise to do a total hysterectomy for fear that we will leave some nodule behind which will subsequently develop. I recall one case where I was an assistant to another surgeon, in which there was a fibroid left in the stump of the cervix. This might happen to any one and simply emphasizes the fact that we must not carry simple myomectomy to an extreme.

In regard to the diagnosis for fibroid tumors, I think that we have all made a mistake. It is not always easy to tell whether we have a simple fibroid, or whether a large tumor is perhaps an ovarian cyst, or even pregnancy. I recall that at a meeting of a distinguished clinical society in St. Louis an operator announced that he was to do a hysterectomy for fibroid by a certain procedure, and he opened and there was pregnancy; and some one said, "If there is a gentleman present who has not had this happen to him, please rise." No one rose. So the diagnosis is not always easy; but in the majority of cases you can make it by the examination plus the history. The history of bleeding—and in Kentucky these cases bleed with prolonged menses—and as the tumor gets larger they have intermittent bleeding or metrorrhagia. I operated recently upon a very large tumor that had had no disturbance of menstruation at all. (Dr. Bloodgood was present at the operation.) The patient had had a normal three-day period every twenty-eight days.

There is one point which I had hoped Dr. Royster would speak of in the technique, and that is on the line of conservatism, and doing the thing which the X-ray will not do, i. e., conserve the function of the ovary. I believe wherever the tube is normal, so far as you can tell by microscopical examination, the tube as well as the ovary should be left in, and these tubes and broad ligaments should be sutured into the cervix, as well as the round ligament. This has been done in a number of clinics and Dr. Clark, of Philadelphia, says to his knowledge it has caused no disturbance. We have been using this method at the City Hospital in Louisville for several years, and so far have had no disturbance from the tubes.

Dr. Royster (closing).—It seems that I did not cover quite enough territory, but I thought that a hint to the wise was sufficient. I find out it is so because they all took the bait. The unsuccessful methods to which I referred,—radium, X-ray, electricity, etc.,—can be put in the same category. It is not possible when one recovers to tell whether it is lapse of time, the treatment given or one's grandmother's prayers. If I had mentioned certain agencies I should have done so only to condemn them. In my judgment one would have to be a very brilliant man to determine just what effect they have.

Some one mentioned what one should do if the case were in one's own family. I should certainly not advise the use of radium or X-ray for any one in my own family. How does one know that the radium has cured when radium itself has not been used such a very long time in these cases, and most of them have had only one or two treatments? I will also remark that in the cases where radium has been used or X-ray or the various forms of electricity, these have been the worst fibroids I have ever had. I have found adhesions to the abdominal wall and seen certain severe degenerations of the tumor. How are we to determine when we use radium whether there is an infected tube or not? Examination does not tell us that beforehand, for often we have a fibroid so large that we can not examine the tubes and ovaries.

As to the matter of speed which Dr. Claybrook brought up, it is a very interesting question. He really does not mean speed, but hurry, and when you get into a hurry you lose time. But there is such a thing as the chronic surgeon, gentlemen, and I would say that there are some men who deliberately operate slowly. If they see a man going rapidly and doing it well they almost have a convulsion. James R. Wood used to say: "An operation quickly done is well done." There are some men who think slowly. Movement is not in the control of the hands, but in the brain cells.

Dr. Burch, who was appointed to open the discussion, evidently did not prepare it. He always does better when he does not prepare. In other words, he always thinks clearly, hits several nails and speaks clearly. One of those hits was transfusion, but we should not wait too long after the transfusion to operate, because they do not always hold it, and you might have to transfuse again. If you are going to transfuse at the time of the operation, all right; but if you transfuse and wait for a week, as I have seen some doctors do, it is not much good.

I believe myomectomy is the operation of choice in many cases, but it is much more difficult than hysterectomy; and those men who have not had large experience had better stick to the hysterectomy. Then the ever-present question is: how do you know there is not another tumor in the uterus?

THE RAILWAY SURGEON OF TODAY*

By Southgate Leigh, M.D., F.A.C.S.
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The subject chosen by me is too broad to be properly and fully covered in the brief time allotted under our rules. I shall, therefore, simply touch upon a few points which appear important for discussion at this meeting.

The founders and builders of the Southern Medical Association acted most wisely in arranging that the Railway Section should be a separate and distinct organization, intended to embrace in its membership every railway surgeon of good standing in the South and so arranged that it could look after many and weighty matters affecting the interests and welfare of those surgeons.

Already the Southern States Association of Railway Surgeons has done good work and made itself felt in the medical and railroad worlds. Its usefulness, however, has only just begun. The future offers a splendid field for development and advance.

Its work naturally divides itself into two distinct parts: Organization and Scientific Endeavor.

Under the first head we should remember that this is a day of united effort. No good work is successful without it. If every railway surgeon of the Southern States could be induced to join, an organization would then be formed which would have tremendous power for good. The wise managers of the Southern Medical Association have so well arranged its affairs that membership in the Railway Association is without additional cost. Any member of the parent organization may become a member of the Railway Association without fees or dues.

There are many important business matters that should receive thorough and prompt attention at the hands of the Southern States Railway Association:

1. The proper compensation for railway surgeons;
2. Foreign transportation for surgeons and their families;
3. Standardizing the necessary equipment for the local surgeon;
4. Sanitation of cars and stations;
5. Better understanding as to the duties of the local surgeon; and many others of lesser importance.

In addition to these strictly business matters, the question of higher educational development should receive a large share of attention. This is today probably the most urgent and vital matter affecting medical men in all lines of activity. This means constant and continued study and work. Our annual meetings can be so arranged as to render them not only tremendously stimulating to us in making us more energetic along these lines, in making us realize more fully our lack of knowledge and in inspiring us with greater zeal to do better things; but they can also be so arranged as to make them short training schools for our work.

For this meeting I wish to call your attention to the fact that we have three distinguished invited guests, who have very kindly come from a long distance to present to us certain subjects most important to our work, and about which they are peculiarly well fitted to speak with authority. I refer to Drs. John C. A. Gerster, Alfred S. Taylor and Lewis Casamajor, all of New York City.

The proper compensation of the railway surgeon is a question presenting many sides and difficulties. It ought, however, to be taken up and handled in a frank and thorough manner. Some railroads look after the interests of their surgeons in a highly satisfactory way, while others do not. I am firmly of the opinion that if the surgeon feels that he is not properly compensated it is his own fault. The railroads pay the lawyers well—why? Because the lawyers make it to their advantage to do so. In the same way the railroad doctors will be well paid if they show that it is to the roads' advantage.

What does that mean? It means that if the doctor gives to his railroad work only indifferent attention, he should expect only indifferent pay. On the other hand, if he gives the best that is in him, his services are bound to be recognized. In the first place he *must know how to do the best work*, must have the necessary equipment, must make thorough examinations (including every part of the body), must

*President's Address, Southern States Association of Railway Surgenos, Auxiliary to Southern Medical Association, Atlanta, Ga., Nov. 13-16, 1916.

make full, exact and prompt reports, and in addition to all this give the injured person the very best attention known to science, combined with gentleness and kindness.

What railroad on earth could fail to recognize the value of a body of active medical men each one of whom was doing this thorough, up-to-date and business-like kind of work? They would realize that the surgical department was their best asset. The natural increase in compensation for these men would come back to the road many times over in saving of cost of damage suits.

That, gentlemen, is my idea of the solution of the difficulty. You may think that I am putting things backward; that the roads should pay better to get better services. I believe, however, that I am right. The railroad management looks at these matters from a different angle from ours. It is a question of business with them. Who are the men in the railroads of this country who are getting the big salaries? The men who "make good." And so I believe that if the doctors "make good" they will also receive their proper rewards.

The important question of foreign transportation will be handled by a committee report later in the meeting.

Sanitation at stations is already receiving attention at the hands of railroad officials and state boards of health. It would probably be best to put these matters in the hands of the local surgeons and hold them responsible. The difficulties are not great and can be easily overcome in this way.

The collection and disposal of human excreta on trains is a most difficult and at the same time a vitally urgent matter. When one thinks of the quantities of disease-laden filth that is being constantly deposited on the roadbeds, and as promptly turned into dust and inhaled into the noses and mouths of unsuspecting travelers, one is horrified at the damage that may be wrought.

It must not be assumed that the railroad people are not busy on this knotty problem. The question is, what can be done? It remains for some bright sanitarian to devise a practical way. In the meantime conferences between the surgeons and the officials may be helpful.

In considering the duties of a railway surgeon, time will not permit us to discuss the importance of complete and thorough examinations made as early as possible after the accident, the making of full records concerning all details of an accident and the condition of every one of the patient's organs and the forwarding of full and accurate reports to the proper authorities. Nor can we consider the sympathetic handling of the patient, the use of all possible kindness, gentleness and consideration, matters which go far toward making a successful doctor in every line of effort.

Our time will only permit our taking up a few other important matters more strictly technical.

The question as to how far a local surgeon should go in the handling of accident cases which come into his care must naturally force us in these times to divide the local surgeons into two classes: first, those who devote their entire time to surgery and have the proper available hospital facilities; and second, those general practitioners who in the remote districts must, perforce, look after accident cases whether they wish it or not.

That brings us at the outset to consider the question of the separation of medicine from surgery.

One of the most serious problems that today confronts those local railway surgeons whose chief work is general practice, and who have only an occasional surgical case to look after, is how far to go in the handling of such cases.

The positive tendency of the times is for a separation of surgery from medicine. It was for this reason chiefly that the American College of Surgeons was founded. Surgery which includes diagnostic investigation, operative technique, pre- and post-operative treatment, has developed into such a broad field that it takes one's entire time to do the necessary work and keep up with all advances. To do safe surgery, then, a man must give his entire time to the exclusion of all other efforts.

To the untrained and inexperienced, surgery as viewed in the modern clinic seems simple and alluring. The hard part and the dark sides do not appear on the surface. To be a safe surgeon one must be brought up in the work. An apprenticeship in a good hospital is an essential pre-

requisite. The time is not far distant when a hospital internship will be required of every candidate for license to practice either medicine or surgery. It is absolutely necessary for the surgeon. The tendency of so many medical men to do surgery is going to stop in a very short time. The profession is recognizing that it is wrong in principle and practice, and the public is comprehending the situation. To the writer it is inconceivable how any doctor should want to meddle with so serious and dangerous a thing as surgery without proper training and equipment.

And this tendency which is seen in some sections is having a most disastrous effect on the practice of medicine as distinguished from surgery. By dabbling in everything, the doctor has no time to equip and train himself properly in medical work, to the detriment of his standing and neglect of the safety of his patients. The field for development in strictly medical work is most promising.

What, then, shall the general practitioner do when called upon to look after major surgical cases?

In any emergency the doctor should do his best, regardless of training and experience. Fortunately most cases are not so urgent. They should have thorough first aid treatment and then be sent to the nearest accessible point where the proper surgical aid may be given.

Every local surgeon must be equipped to give the very best first aid attention, including treatment of shock, stopping of hemorrhage, immobilizing bones and *clean handling* of wounds.

But what of so-called minor accident surgery, much of which from a medico-legal standpoint is liable to develop into major work? If the local surgeon is to handle these cases, he must properly train himself for the work and he must have the necessary equipment. Where bones and joints are involved the use of the X-ray (often repeated) is absolutely essential, as is also the proper use of anti-tetanic serum in punctured and certain badly lacerated wounds.

Surgical cleanliness, including antisepsis, must be practically familiar to every man who handles wounds, whether he be a surgeon or a general practitioner. Its principles are as simple as the alphabet, and yet we know that even in these advanced times the grossest carelessness is often seen. This is well nigh criminal. The general practitioner is frequently most faulty in his technique, and even in up-to-date hospitals and in the service of the leaders of surgery, not infrequently an infection occurs.

In surgical cleanliness, thoroughness is all essential. A surgeon must be almost "brought up" to be "clean." It should be second nature to him. It ought to be so unnatural to him to be otherwise than "clean" in his work, that the slightest tendency on his part or the part of his assistants to make an error should be immediately and shockingly apparent.

Too often with the railroad surgeon lack of time, lack of facilities and assistance are the ever-ready excuses for carelessness. But such excuses are neither reasonable nor plausible.

In modern railroad surgery there is rarely any need for great haste in operating. There is nearly always sufficient time for the necessary and absolutely essential arrangements to be gotten ready and in order. And this is true just as much in the country as in hospital practice. Every man who pretends to do such work must be equipped with the few instruments, appliances and medicines that are essential. The rest is plain though troublesome. Sterilizing of the few essentials, such as instruments and water, can always be done, even among the most primitive surroundings.

If we bear in mind constantly the principles of surgical cleanliness, and the dangers of carelessness, the carrying out of details is comparatively simple, however great the obstacles in the way.

The general surgeon, doing railroad work, is now *forced* to be cleaner and make his asistants and surroundings cleaner because of the increasing amount of bone work that is coming to him. Those advocating and practicing the instrumental handling of wounds in these cases are, in doing so, admitting their faulty technique.

Three years ago, at the meeting of the Virginia Medical Society, I was much impressed by hearing the father of aseptic and antiseptic surgery in this country, in the course of a most interesting address, mention a case of serious infection follow-

ing a bone operation, which infection was traced to faulty sterilizing of gloves.

The perfect cleansing of gloves is now the one weak spot in our technique. No glove used in a dirty case should ever be used afterward in a clean one. Our plan is to glue red patches on such gloves so as to prevent this error. Further, we advocate the using of two pairs of gloves where the skin of the hands is rough and hard to cleanse. It might be well to do so in every case. Again, we advocate as an additional precaution that the gloved hands be soaked in 1-250 bichlorid.

The prompt catching and immediate destruction of all septic discharges, both in the operating room and wards, the immediate disinfection of all soiled spots on the operating room floors and tables, and a strict rule forbidding doctors and nurses' handling any septic materials without gloves, will all aid in perfecting our cleanliness technique.

And now finally a few more words regarding medical education and I am done. Fortunately for us medical men and for the public also, we are now in an age of advance and improvement. In every line of business all is progress and development. Our own profession is making wonderful strides. The greatest element of weakness, however, lies in the fact that the average busy doctor is so engrossed in his work, and his time is so taken up by its active details, that he is neglecting, to even a dangerous degree, the theoretical and practical studies that today are vitally essential to his success. In order to prevent going backward he *must study*. Each succeeding year the new men leaving our colleges and hospitals are better and better equipped, both with theoretical and practical knowledge. It is therefore getting harder and harder for the men already in the field successfully to withstand such competition, although this competition is good for them. It stirs them up and makes them realize in a most tangible way that their valuable wealth of experience is not all that is necessary for them successfully to combat the ravages of disease and trauma and to do their duty to the people who have trustfully placed themselves in their hands.

In order to "keep up with the times" the doctor must read the journals, attend the clinics and confer with his fellow medical men just as often as he possibly can through the various meetings—county, district, state and interstate. Fortunately, the opportunitities for study and improvement are easily accessible to us all. To the glory of our profession, be it said, that the doctor makes no secret of his knowledge, but is ready and willing to share it at all times with his fellows.

What could the profession have done without the wonderful and advanced teachings of one of the greatest of all teachers of surgery that the world has ever known, and who only a few weeks ago was called to his rest? If Murphy had done nothing else for surgery than devise the operation to relieve ankylosis of the hip, he would have been renowned. And this was only one of the hundreds of things that he did toward the development of surgery and the relief of suffering humanity. And the words of wisdom and advice that came continually flowing from his lips were as free as the air.

Crile's positive demonstration of the fact that tissues have feeling, whether the patient be anesthetized or not, and that rough handling of wounds makes an immediate and serious impression on the cells in the brain, has taught the surgeon that *gentleness* is one of the essentials of his work and has done much toward the prevention and lessening of shock, with a consequent marked falling off in the mortality rate.

To the surgeon, the Mayo clinic is the great school for practical learning. There, so many things can be seen and learned in so short a time. It is the great free school of surgery of the world. Every one is welcome and treated with kindly consideration. One of the most attractive features about the clinic and the workers is their simplicity and lack of egotism. Notwithstanding their great store of knowledge and experience they are constantly seeking more knowledge and better methods. Their example in this respect is one that medical men the world over should emulate.

The doctor who "knows it all" is a dangerous man. He is nowadays fortunately a rare species. The really great men are modest and unostentatious, and like the Mayos are always seeking more knowledge.

Medical meetings do much toward mak-

ing us realize our own shortcomings and lack of knowledge, and stimulate us to renewed effort toward improvement.

In railroad work especially it seems to me that there is much room for betterment.

May this meeting of the railway surgeons of our dear old Southland be an inspiration to us. May the splendid papers which will be read for our benefit, and the earnest interchange of thought and ideas which will take place during the discussions, be productive of great good to us all. And when we return to our respective homes, may each of us feel that it was good to be here and feel stimulated and encouraged to make renewed efforts for better and more perfect work during the year that is before us.

DIFFERENTIAL DIAGNOSIS OF SURGICAL CONDITIONS OF THE UPPER ABDOMEN*

By C. M. Rosser, M.D.,
Dallas, Texas.

It is a criticism, not always without some basis, that surgery as practiced by many well-reputed surgeons is the least scientific of the several departments into which for convenience of study and of application the general subject of medicine has been sub-divided; and it has been suggested that, because of laboratory facilities employed for the most part by experts who devote themselves to such investigations for the purpose of diagnosis only, and because internists properly refer operable cases to surgical specialists when they cease to be appropriate for medical treatment, surgical diagnosis by the surgeon himself is destined to become a lost art.

Too much importance can not be attached to laboratory methods, and the medical practitioner preceding, as he ordinarily does, must be appealed to for the history of the case, as observed by him during development; and his judgment concerning all points of issue should be given the serious weight to which individual intelligence, scientific training, and superior opportunity for observation entitles him. The surgeon, however, should avoid an attitude which classes him only as a mechanic whose business it is to accept plans and specifications exhibited by the architect and determined by him alone. Safety and success obtain only when, in view of all available light, the surgeon proceeds about his work with a full realization of the fact that at the time of each responsibility he is the court of last resort; and that as such, neither indifference nor ultra-courtesy may divorce him from his obligation to exercise his moral and surgical conscience, as well as his technical skill to the last degree possible.

We ought also to keep in mind the fact that surgery does not consist alone in doing things, but that surgery is being practiced when surgical problems are being considered quite as truly as when Manual Methods are being employed for the correction of surgical pathology, and the more obscure and complex the condition presented, the higher order of the surgical equipment required.

Certainly classical cases are observed, but I think it has been the general experience that there is a percentage far from negligible in which, try as we may, a differential diagnosis can only be made after the most careful analysis, and that there are those in which it is wholly impossible. In such a dilemma, it is the most necessary that neuroses of non-surgical origin be excluded, and it is touching this point that I desire to speak with some emphasis.

I am definitely opposed to the performance of surgery for a psychological effect, believing as I do that each surgical undertaking which fails to reach a basic cause is potential for injury. I am referring especially to those cases in which neurasthenia from the milder to graver forms is being dealt with. An exploratory operation, although sometimes justifiable, must be regarded as an error when the result is only a demonstration of our inability to make accurate diagnosis beforehand; and it often leads to disappointments and distrust on the part of a patient, already too nearly hopeless.

Cures of imaginary ills and improvement in some which actually exist, are many times influenced favorably by a

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system of well-directed suggestion; and the medical man who ignores the principle of mental control fails at a vital point and is to that measure unfaithful. But suggestions are equally as effective for good purposes when sensible and honest as when deceptive and insincere. We should, therefore, leave to the Christian Scientist, the Holy Roller, the sleight-of-hand faker, etc., the questionable methods for which these cults and their kind are so celebrated.

There is probably no particular portion of the human body to present more difficult problems than the upper abdomen, and a consideration of some of these can not be without profit. The questions which most frequently arise are between—

1. Neurotic manifestations in that locality;
2. Gastric ulcer;
3. Duodenal ulcer;
4. Chronic pancreatitis;
5. Diseases of the biliary passages; and
6. Chronic appendicitis.

In the first place, I want to stress the importance of obtaining a detailed history of the initial illness, for without this we are often surrounded in a wilderness of doubt. There was a time in the history of each patient when, so far as he knew, he was well, or at least in ordinary health; and immediately following this he was not so well; and if the uncomplicated condition which was present at the start can be properly understood, there will be less difficulty in determining the major lesion, however complex and complicated the problems later appear.

A chronic appendicitis which is now responsible for reflex pyloric spasm and varying epigastric pain was once an acute appendicitis attended the first few hours by general abdominal distress, colicky pains about the umbilicus, nausea, probably vomiting, and later was localized at McBurney's point with rigidity of the recti, thigh flexion and other symptoms too clearly indicative to be misunderstood. If investigations were complete, and the records available, there was slight elevation of temperature and a moderate leukocytosis. Other indications being negative, we are justified in passing sentence upon the appendix and should proceed accordingly.

Suppose, on the other hand, that the patient now having epigastric pain of irregular occurrence, not much if at all influenced by taking food, never having exhibited evidence of real hemorrhage, should tell us of a primary attack probably at the time called "bilious colic" for which an opiate was required, such attacks recurring at irregular intervals, the pain referable to the lower liver region and radiating behind the right shoulder, associated with or without icterus, with gas distention and other symptoms of indigestion. We immediately think of gall bladder disease and must continue to think of it, however confusing the present symptoms may be. And if we add to this a history of precedent typhoid fever which will be found in probably one-half of the cases, the opinion is that much the more strengthened.

We should also look for evidence of infection, both at the time of the original attack and in those of recurrences. This, while not essential, is quite indicative of stone; particularly when located in the cystic duct where lymphatics are numerous, and which is not the case with the fundus. And then, too, confined stones in the neck of the gall bladder or in the adjacent ducts may give rise to ulcerations with consequent absorption. Jaundice is neither a constant nor necessary symptom, and its presence or absence demonstrates nothing entirely definite except that there is interference with bile delivery, and this may be embarrassed by an enlarged head of the pancreas, by new growths, malignant or otherwise, by mucous plugs in either of the ducts, as well as by stone occlusion of the common duct itself, which will probably be present in less than 20 % of the cases.

Gastric and duodenal ulcer, occupying as they do so contiguous a territory and behaving in a general manner so nearly alike, require careful study for differentiation, but there is, I think, little excuse for being continuously confused.

Sex, gas eructations, and other symptoms commonly called indigestion indicate nothing distinctive, because there are no abdominal conditions in which they may not appear, and the simple fact that there is pain in any particular locality is not conclusive; for these are complaints which are common also to other abdominal diseases. At the outset, we must un-

derstand what is meant by pain, and to do this the temperament of the patient as well as a description of the distress must be considered. Normal peristalsis may disturb a sensitive neurotic, a sensation of fullness, of weight and oppression may distress others. Nausea with or without attendant vomiting, and other symptoms equally individual will be described according to the nervous equilibrium maintained by the patient.

We must also distinguish between subjective tenderness and independent pain, that character of pain which is independent of exerted pressure and bodily posture, and we must take into account the relative regularity of manifestation, of location and radiation; and lastly, whether associated in occurrence and recurrence with day and season periods; and whether influenced by physiological activities.

Regarding what point of difference must we inquire?

In both there is pain of a burning and distressing character, but the gastric pain is remittant in manifestation, while the duodenal pain has definite intermissions.

Both manifest increased distress during stomach emptiness; but the already existing pain of gastric ulcer is only relieved for a short time by taking food and may indeed be promptly increased by such exhibition, while the pain of duodenal ulcer is relieved by food ingestion, the rule being that the larger quantity taken the longer the relief and that recurrence is not expected for several hours.

The difference is not so marked if gastric ulceration is at or near the pylorus, particularly in the atonic and largely dilated stomach, and yet it is manifested very clearly.

Tenderness on pressure is elicited over the epigastrun only in uncomplicated gastric ulcer; but the pain of duodenal ulcer caused by pressure is vaguely distributed in neighboring regions.

Vomiting is frequent in gastric ulcer, but seldom occurs in the duodenal before perforation is sufficiently eminent to produce a localized peritonitis.

What as to hemorrhage? All blood discovery does not prove hemorrhage from the stomach or duodenum, and neither is hemorrhage a constant sign for either. When, however, it does occur, it is apt to be pronounced, exciting, and sometimes exhausting; and such occurrence does indicate ulceration at some part of the alimentary tract. The rule is that blood vomited freely and prior to appearance in stools means gastric bleeding. But it may be passed into the lower canal and actually expelled without producing vomiting, and if a reversed peristalsis shall deliver blood from the duodenum into the stomach, it may be ejected upward before the downward exit of any part of it is accomplished.

These are a few of the symptoms which, in the absence of bile vomiting, jaundice, right radiating pains of irregular and inconstant character, toxic disturbances, and in the absence of an original appendicular attack such as was early described, should leave no doubt that ulcer either of the stomach or duodenum exists without other important complications; and the difference between the two is a matter of reasonable apprehension.

I have purposely omitted to mention the employment of laboratory methods, such as the hydrocholoric estimate and X-ray agencies, for the reason that the purpose of this paper is to urge the importance, and to stimulate the study, of the clinical symptoms by the clinician who is to have final responsibility in each individual case.

Certainly in matters so important laboratory methods should never be omitted when they are possible of employment; but their findings should be regarded as confirmatory rather than controlling.

I am also neglecting a discussion of carcinomatous conditions which unfortunately supervene, and which are now known frequently to implant themselves upon uncured ulcerative areas. This feature alone is worthy of, and would require, an ample and an individual treatment.

SOME INCONSISTENCIES IN SURGICAL TECHNIC*

By J. Shelton Horsley, M.D., F.A.C.S., Richmond, Va.

Inconsistencies and irregularities in surgical technic probably occur to a greater or less extent in the practice of every surgeon. When he makes an ear-

*Read in Section on Surgery, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

nest effort to smooth out these rough places it appears to be his duty to report the results of his efforts so others may derive from them some benefit or consolation. Most inconsistencies in technic have to do with either bacterial infection or recurrence of malignant growths, and while the former is more frequent, the latter is more likely to be disastrous in its consequences.

As regards bacterial infection, the operating room and its surroundings should receive first consideration. In the scramble to find bacterial agents, and to devise original methods of sterilizing the hands of the surgeon and the wound of the patient, we have too often lost sight of the possibilities of air infection which were originally so emphasized by Pasteur and by Lister. Many years ago Brewer greatly reduced the infections following operations at the New York City Hospital by changing currents of air that were formerly coming to the operating room from the wards where septic cases were treated. A. J. Ochsner has called attention to the desirability of locating the operating room on the top floor of a hospital. The reason for this is not only to secure better light and air, but to be out of the dust line of the street, and to prevent dust from being set free by movement in the story above and floating down into the operating room department. When we recall the original experiments of Lister with boiled urine, we can readily appreciate the significance of this. Lister sterilized urine by heating it in glass flasks with narrow necks and bent the neck at an acute angle. The opening at the neck was small, but was not closed. If these flasks were handled gently the urine would remain sterile for years, but if they were violently shaken air would be forced out and drawn in and fermentation would begin in a few hours.

The possibility of dust or air infection must always be borne in mind. Occasionally in every operating room an abscess is opened or septic material is spilled. Some of it may dry quickly and float in the air as dust. If the operating room adjoins the sterilizing room, and is connected with it by a swinging door, as the nurse goes back and forth some of this dust is drawn into the sterilizing room and may drop on the dressings. The chandelier that hangs over the wound is a prolific source of dust infection. It is difficult to clean and the least jar will make it send down myriads of dust particles and germs into the open wound of the patient. The lighting should be done by means of a crane that folds back on the wall during the day.

With some surgeons it is a fad that fingers, even when encased in sterile rubber gloves, should never touch the wound. That a wound should not be unnecessarily handled with the fingers, and that bone should be manipulated chiefly, if not entirely, with instruments is obvious. But physiological surgery as well as bacteriological surgery must be borne in mind, and gentle fingers in sterile rubber gloves will do less damage to the tissues and so conserve the patient's natural defenses to a greater extent than bruising and crushing with steel forceps. I have seen moving pictures of a hernia operation done by a surgeon who claims that the fingers should never touch the wound because of their liability to carry infection. The literal part of the technic was well carried out, and yet the picture showed that the blood vessels that had been carefully grasped with forceps were tied with catgut applied by the fingers of the assistant, who was probably an intern. And we know that the intern is the "goat" for cases that become infected after operation.

In intestinal suturing, often no attempt is made to sterilize the mucosa of the surfaces to be united. This is probably not essential in many cases of stomach surgery or in the upper jejunum, as but few pathogenic bacteria are found in this region. But the ileum and colon team with bacteria of infection, and it seems just as essential to clean the mucous membrane of the ends of the bowel which are to be united and mop them with some antiseptic solution as it is to clean a dirty skin before incising it. Connell has abundantly proved that an intestinal suture to be safe must penetrate into the lumen of the intestine. If no effort is made to disinfect that lumen the needle and thread become very common carriers of germs and smear infective bacteria wherever they touch.

In previous papers[1] I have called attention to the error of regarding end-to-end union of intestine dangerous because of

[1]Surgery, Gynecology and Obstetrics, March, 1909, pp. 286-7; Southern Medical Journal, April, 1915, pp. 296-299; Surgery of the Blood Vessels, Horsley, published by C. V. Mosby & Co., pp. 204-5.

failure to unite at the mesenteric border. A frequent practice in resecting bowel is to divide the bowel with scissors from the free border into the mesentery, and the scissors that cut through the infected mucosa and fecal contents of the bowel also cut into the triangular area at the mesenteric border, which is filled with areolar tissue and rich in lymphatics and blood vessels. No wonder that infection results, and the suture line often breaks down at this point. Even a mesenteric stitch placed after the bowel has been sutured merely seals in the infection. The mesentery should be cut close to the bowel and this trangular area clamped and tied before the lumen of the bowel is opened (Fig. 1).

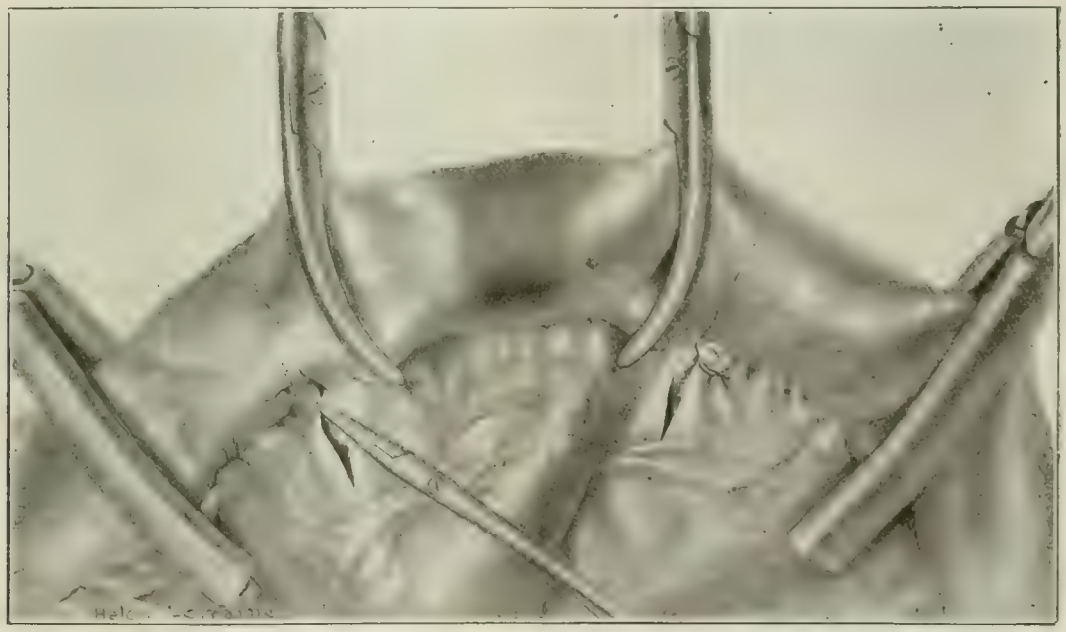

Fig. 1.—In resection of intestine the mesentery should be cut close to the bowel, and the triangular space caused by the separation of the layers of the mesentery before they cover the bowel should be clamped with a hemostat and ligated. This seals the triangular space and prevents infection from gaining entrance here.

The most frequently performed abdominal operation is for appendicitis, and any inconsistency in the technic of appendectomy should be of interest. The treatment of the stump of the appendix is a matter of some importance, though fortunately nature has so abundantly provided for blood supply in the region of the cecum that almost any kind of treatment will be successful in the majority of cases. An often employed method of treating the stump of the appendix is first to ligate it and then bury it with a purse-string suture. I formerly used this method, but I found it gave more pain, and I believe was more dangerous than the simple ligation and disinfection of the stump, so for some years I have used the latter method entirely. A comparison between this and burying the stump of the appendix is shown by the accompanying drawings (Figs. 2, 3, 4 and 5). The analogy of covering a raw surface does not hold in this instance, because when the stump is invaginated by a purse-string suture it is not turned into well vascularized tissue as when the stump of a broad ligament is buried, but the tissue to which the stump is attached is pushed into the cavity of the cecum. The objections to burying the stump may be summarized as follows:

1. It is more complicated than the simple ligation of the appendix, an intestinal suture being used in addition to the ligature.

2. The purse-string suture cuts off some of the blood supply which would otherwise go up to the ligated stump and assist in

healing. This also diminishes the resistance of the tissues.

3. It places a piece of necrotic tissue, the stump, in a closed cavity and shuts it off from the omentum which would not only help to absorb the stump, but would also be a safeguard against infection (Fig. 4).

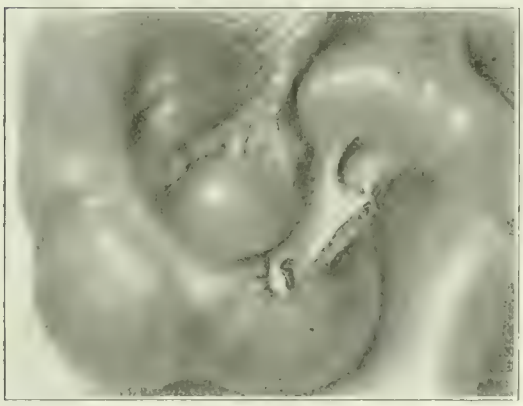

Fig. 2.—Simple method of treating stump of appendix. The appendix has been ligated and the stump disinfected.

4. By burying the stump and cutting off some blood supply, a greater hyperemia is caused than when the stump is simply ligated; consequently, the adhesions that occur are more likely to be permanent, for when the stump adheres it is absorbed.

5. It offers an excellent place for abscess formation, having most of the requisites, that is, a closed cavity, diminished blood supply, a piece of necrotic tissue, and being almost totally surrounded by fecal contents of the cecum (Fig. 4).

Fig. 3.—Invaginating method, showing purse-string suture placed around the stump of the appendix just before the stump is buried.

6. It tends to leave a permanent lump in the bowel wall, which will be a constant source of irritation and a possible starting point for cancer (Fig. 4).

When the stump is treated merely by ligation the blood supply right to the base of the stump is not interfered with. The omentum or adjoining mesentery becomes attached to the necrotic stump and aids in disintegrating it. As a rule, after the stump has been absorbed the omentum or mesentery drops away and leaves the bowel wall smooth (Fig. 5). The objection that a simple ligature might blow off can hardly be seriously considered. It is much safer to ligate the stump of the appendix than it would be to ligate a blood vessel, as the pressure is less. If in an

Fig. 4.—Sectional view, showing the result of the invaginating method. Note that the blood supply is partly cut off by the purse-string suture, a piece of necrotic stump is left in the closed cavity, and the mass of invaginated tissue can be almost surrounded by fecal contents. It is impossible for the omentum or mesentery to reach the stump of the appendix, and a permanent lump is left in the wall of the cecum which may be a future source of ulcer or cancer.

amputation of the thigh the femoral artery were ligated and the ligature afterward slipped, causing the patient to die from hemorrhage, the conclusion can hardly be drawn that the whole principle of ligating is wrong. A fairer view of the situation would be that the ligature was not properly applied. If the appendix is necrotic up to the cecum, it should be cut off flush with the cecum or some of the cecum included, and the resulting wound treated as a stab wound of the intestines. The popularity of burying the stump of the

Fig. 5.—A sectional view showing the simple method of treating the stump of the appendix. Note that the interior of the cecum is undisturbed and is left perfectly smooth.

appendix seems to be solely due to the fact that it "looks pretty." The analogy of burying a raw surface, as has been mentioned, does not hold when the stump of the appendix has been buried.

In recent years there have been many instances in literature showing the bad effects of burying the stump of the appendix. The accompanying illustration is taken from an article by Dr. Frank E. Bunts,[2] of Cleveland, Ohio. It shows (Fig. 6) a condition which he found,—a diverticulum that had formed where a purse-string suture had been placed to bury the stump of the appendix. Dr. Bunts states that he has found two other distinct cases like this, though the diverticula were not nearly so large as in the case that he illustrated.

Dr. R. Bland Williams,[3] Surgeon in the United States Navy, reports three hun-hundred and twenty-four consecutive cases of appendicitis operated upon without a death. So far as I know this is the most

Fig. 6.—Traumatic diverticulum of the cecum following appendectomy where the purse-string suture had been placed. Dr. Frank E. Bunts, Surgery, Gynecology and Obstetrics, December, 1914, p. 791.)

remarkable consecutive series of cases of appendicitis without a death on record. In this article Dr. Williams says:

"For the past year and a half we have not inverted the stump, believing it entirely unnecessary. The meso-appendix is tied off, usually with a single ligature, the base of the appendix is clamped, ligated with No. 2 chromic catgut in the groove thus formed and the stump disinfected with carbolic acid. In several cases in which a secondary operation had to be done for other causes it was found that no sign of the stump was present and no adhesions had been formed following simple ligation."

Dr. James T. Case,[4] who is Professor of Roentgenology in Northwestern University Medical School, in a paper entitled "Roentgen Studies After Gastric and Intestinal Operations," shows an X-ray picture which is here reproduced (Fig. 7). He says:

"I believe that the rounded barium residue above referred to occurs at the site of the stump of the appendix, and that it has some relation to the invaginating suture by which in the technic commonly employed the stump is buried."

[2]Surgery, Gynecology and Obstetrics, December, 1914, p. 791.

[3]Surgery, Gynecology and Obstetrics, February, 1916, pp. 218-220.

[4]Journal of A. M. A., November 6, 1915, Vol. LXV, pp. 1628-34.

It seems strange that with such increasing evidence of the occasional bad effects of burying the stump of the appendix, the simpler and more efficient method is not generally adopted.

A serious inconsistency in technic is in operations for malignant growths. Probably the chief error in this respect consists in incomplete operations, or in the neglect to regard cancerous cells as capable of metastases when implanted on the raw surface of a patient's wound. Then, too, the necessity of making the "punishment fit the crime" has not always been observed. Sometimes, as in beginning of cancer of the prepuce, a complete amputation of the penis may have been done when a much more limited operation would have been all that was necessary. Again, a local operation may be done on the breast when nothing but an extensive dissection, removing all the tissue in one mass, could give any hope for permanent cure. A frequent error is cutting into the suspected tissue. This has been often alluded to and it should be unnecessary to do so now, yet it is by no means uncommon to find a suspected tumor of the breast cut into and a specimen sent to the pathologist for his report with the statement that if it is cancer the patient will be operated upon. According to Bloodgood, statistics from Johns Hopkins up to a few years ago showed that there had not been a single case of cancer of the breast which had been cut into and operated upon several days later in which there was a permanent cure. In eight advanced cases of cancer of the mouth and tongue which I reported last year before the Southern Medical Association, five had been incised for removal of specimen or an incomplete operation had been done before the radical operation. In one case a paste had been applied and a recurrence had followed the paste; in two no incision of any kind had been made until the operation was done by me. At present the five cases in which incision had been made are dead, and the three in which no incision had been made are living and free from recurrence from two to nearly five years after the operations. Cancer metastases proceed almost entirely by lymphatics or by contact. If an incision is made through fresh tissue into the cancerous tissue, the cancer cells are rapidly implanted on the freshly cut surface and in lymphatics which probably they would not have reached by ordinary growth for weeks or months. No incision should be made into a cancerous or suspected tissue unless a frozen section can be made and an operation done within a few minutes if the growth proves cancerous. A laboratory study by the surgeon of the sections from tumors that he removes certainly adds to his efficiency in dealing with cancer.

Fig. 7.—An X-ray picture showing a "small rounded residue often seen at the site of the appendix stump following appendectomy; also sometimes seen about the base of a diseased appendix before removal. In some cases showing such a residue after the barium meal, the operation had been performed years before." The illustration was kindly sent me by Dr. James T. Case, Professor of Roentgenology in Northwestern University Medical School. He says he believes that this residue has some relation to the purse-string suture by which the stump is buried. (Journal of the American Medical Association, Nov. 6, 1915, Vol. LXV, pp. 1628-34.)

DISCUSSION

Dr. John W. Dillard, Lynchburg, Va.—For a long time, and up to about fifteen years ago, I treated the stump by crushing it and ligating with silk or chromicized gut and cutting off the appendix about a half an inch from the cecum, carbolizing the lumen of the proximal end of the appendix and wiping it off with alcohol.

This technic was satisfactory, but about five years ago I abandoned it and used the pure-string on the cecum, burying the stump of the appendix, after having ligated it.

Purely to save time in the technic I have gone back to the former way of treating the stump. In cases of suppurative appendicitis I tie off the stump with No. 2 chromicized catgut.

I have often examined cases that have been operated on for appendicitis and the stump treated by the open ligature years afterward, when a laporotomy had to be performed for some other trouble, and found that the stump of the appendix had entirely disappeared and the cecum presented a smooth and rounded surface at the former seat of the appendix.

Dr. Horsley (closing).—It struck me as being well to call attention to the treatment of the stump of the appendix, because sometimes we do things without thinking about it. Almost every one of those other errors I have at some time committed to a greater or less extent.

AUTHOR'S ABSTRACTS

Surgery, Gynecology, Obstetrics and Genito-Urinary Diseases

Tuberculosis of the Tongue. James R. Scott, Washington, D. C. American Journal of the Medical Sciences, September, 1916, p. 411.

The comparative rarity of tuberculosis of the tongue is attested by the fact that but 231 authentic cases have been reported up to the present time. In America, only 27 cases have been reported in medical literature. The article reports one case occurring in an enlisted man in the United States Army, which is to be considered as a case of the primary form of the disease. The disease occurs more frequently in males than in females, probably from the fact that males are more prone to carry miscellaneous objects in the mouth. The disease occurs during all age periods of life, but is most common in the decade from forty to fifty years. It occurs in two forms, primary and secondary. The greater number of cases are secondary in nature. Clinically, it may assume different types, as the ulcerated, fissured, the granulomatous, and the papillomatous. The differential diagnosis involves consideration of simple ulcers, the local manifestations of lues, carcinoma and epithelioma. The prognosis is favorable in cases of primary lingual tuberculosis, but almost hopeless in cases where it is secondary to tuberculous involvement of other organs. The treatment is either medical or surgical. Medical treatment offers little hope of ultimate cure and should only be used in advanced cases, or where the lingual process is accompanied by a generalized tuberculosis. The rational treatment is surgical in nature, with complete excision of the involved tissues and the surrounding healthy tissues for some distance.

The Most Practicable Plan for the Organization, Training and Utilization of the Medical Officers of the Medical Reserve Corps of the United States Army and Navy, and of the Medical Officers of the Officers' Reserve Corps of the United States Army, in Peace and War. The Wellcome First Prize Essay. Mahlon Ashford, Harlingen, Tex. The Military Surgeon, Vol. XL, No. 2, February, 1917, p. 123.

An adequate plan for the Medical Reserve Corps must consider the extensive character of modern warfare and recognize the necessity for instruction of all medical practitioners in essential sanitary tactics in peace time; that the Nation may be served by them with the minimum avoidable loss of life and unnecessary suffering in war. The only place for such universal instruction of potential reserve medical officers is the medical school.

A two-hour weekly instruction course is proposed for third and fourth-year medical students. Medical schools should institute this course voluntarily and control it under general Federal supervision. The decision whether the course be compulsory or optional for medical degree rests with the individual school. The Government supplies an officer for Reserve officer as instructor to any school having one hundred students for this instruction. Separate courses are proposed for Army and Navy medical cadets. A fifteen-day vacation instruction period, afield or afloat, is contemplated for third- and fourth-year students in addition to the Winter courses. These medical cadets will not be required to give military service in war except voluntarily in home hospitals.

Medical graduates completing this course are eligible for commissions in the Officers' Reserve Corps. At this time or upon termination of an internship, Reserve officers pursue a four-year correspondence course combined with four Summer camps or cruises. At the end of the second and fourth years, qualifying examinations for rank of Captain and Major in the Reserve Corps are held. Promotion by seniority is given qualified officers. Upon completing this four-year training, qualified officers are only required to master the contents of quarterly Bulletins of Instructions and to attend tri-ennial instruction camps. A special grade of Consulting Surgeon is provided and details for national and state organization and utilization of the corps discussed.

The Principles Underlying the Surgery of the Pancreas. John B. Deaver, Philadelphia, Pa. The Boston Medical and Surgical Journal, Vol. CLXXVI, No. 6, February 8, 1917, p. 187.

Careful study and observation lead the author to conclude that pancreatitis is generally due to an infection propagated from the duodenum and the gall bladder by way of the lymphatics. In acute pancreatitis there is also ferment activity, sometimes also traumatic and chemical. Ultra-acute cases require immediate intervention. We can not, however, hope to do more than effect immediate recovery by rapid abdominal section and hasty drainage. Sometimes it is advisable to wait until the peritonitis becomes limited, which may be accomplished by absolutely complete anatomic and physiological rest and the

usual bed-side measures. In less acute cases operation should also be resorted to at once, but here there is time for simple procedures which are not shocking, and, as the biliary tract is at fault, the operation should be directed to the removal of stones from the gall bladder or the ducts and drainage if there is any indication of infection, whether or not calculus is detected. In the author's 16 cases cholecystostomy was done in 11 with 3 deaths, cholecystostomy and choledochostomy in 2, both recovering, and in 3 cases in which the bile tract was untouched two died and one recovered. One patient collapsed on the operating table, before anything but the abdominal incision had been made. Cholecystectomy, although providing greater security against recurrence, is not advisable in these cases, as immediate results are here also all that can be considered, the future must be allowed to take care of itself.

In chronic pancreatitis cholecystectomy is the operation of choice; obstruction in the common duct may be corrected by prolonged drainage or cholecystoduodenostomy. In doubtful cases prolonged drainage may be obtained by leaving the gall bladder, sewing it to the parietal peritoneum and marsupializing it. Common duct drainage may lead to stricture, although the occurrence is rare.

Trifacial Neuralgia: Its Treatment by Alcohol Injections of the Second and Third Divisions at the Foramina Rotunda and Ovale. R. L. Payne, Jr., Norfolk, Va. Virginia Medical Semi-Monthly, Vol. XXI, No. 21, February 9, 1917, p. 521.

This operation is fraught with many serious possibilities and should never be attempted by one without first making careful anatomical studies and thoroughly familiarizing himself with the various technics and methods of approach. On the other hand, it is an operation, when properly executed, which affords relief in cases of trigeminal neuralgia that is little less than marvelous.

The author's experience with alcohol injections covers a list of thirty-odd cases in which he has found the procedure applicable and withal quite satisfactory. The youngest individual so treated was 42 years old, while the oldest was 84.

So far he has been fortunate enough to escape any complications following this treatment, but the method is not free from possible danger. Deafness following the accidental injection of alcohol into the Eustachian tube has been reported and corneal ulcers with keratitis are prone to follow too complete destruction of the ganglionic cells. These complications are not to be compared, however, with the original suffering and patients with *tic douloureux* are usually quite willing to take any chance for the sake of relief.

Only one fatality has been reported in the literature, and when the procedure is carried out by one familiar with the technic there is offered to the patient a means of relief which can hardly be compared with the major surgical procedure of Gasserectomy. The removal of the ganglion necessitates a major cranial operation under a general anesthetic and results in a lasting scar with the possibility of permanent brain injury. It is often followed by hemiplegia, loss of mental ability, keratitis and facial palsy. The author, therefore, believes operation should never be offered these cases until deep alcohol injections have been given a thorough trial.

Greek and Roman Surgery. W. C. Borden, Washington, D. C. Virginia Medical Semi-Monthly, January 12, 1917, p. 480.

The surgery of the early Greeks, like that of all primitive people, was confined to arresting hemorrhage by pressure, the extraction of foreign bodies, crude bandaging, and primitive methods of adjusting fractures. Finally there appeared Aesculapius, who, as his memory became obscure by antiquity, was deified as the God of Medicine, and his descendants, the Aesculapaids, became the priests of his temples and the practitioners of medicine in Greece.

From such ancestry, Hippocrates was born about B. C. 460 and became the great exponent of Greek medicine and surgery. He lived in the golden age of Greece, when in art, in architecture and in literature the Greeks reached their pinnacle of attainment. His writings are encyclopedic and appear to cover all that was then known of medicine and surgery.

The Greek surgery of Hippocrates and his followers was advanced and furthered by the great philosopher, Aristotle, who, the son of a physician, the pupil of Plato and the tutor of Alexander the Great, formed one of the chief links which connected the Greek practices with that learning which was carried from Greece to Egypt by the conquests of Alexander and founded the great Alexandrian school under Alexander's successors, the Ptolemies.

The mingling of Greek and Egyptian medicine and surgery gave rise to those advances which were later to be carried to Rome. Rome had been gradually fighting her way to universal empire. Greece and Egypt passed under Roman domination, and Rome, the great absorber, gathered to herself and utilized the religion, the arts and the philosophies of her subjugated provinces and took over medicine and surgery from Greece and Egypt which in Rome was later elaborated and correlated by Celsus and Galen.

Prior to the invasion of Greek and Egyptian learning, Roman practice was that of the most primitive people. Cato, the Elder, about 200 years B.C., advocated cabbage as a universal remedy and treated dislocations by absurd and meaningless expressions and magic songs.

Claudius Galen, whose writings ruled the medical world for nearly 1,500 years, was born in Permagos, A.D. 131. He studied in Greece and Egypt and afterward settled in Rome, bringing to that city his accumulated Greeco-Alexandrian knowledge.

The era of Roman surgery ended with Paulus of Aegina, A.D. 650. His sixth book is entirely devoted to surgery. It is the most complete system of operative surgery which has come down from the ancients and brings the whole surgery of the ancient world to a focus.

In the art of surgery, developed by the Greeks, even the simplest procedures were hamperd by lack of anatomical and physiological knowledge.

As great as were the Greeks in art, in architecture, in literature and in philosophy, their mental trend was toward the perfection of externals as shown by their art, and toward philosophic theorizing as shown by their philosophy, rather than toward investigating the underlying facts in nature. The surgery of the Greeks, amplified in Egypt and carried into Rome, was a mixture of empiricism and philosophical theorizing, and the healing art remained in this condition until after the middle ages research and the development of science laid the foundation for a rational superstructure of practice.

Recurrence of Gall Stones. John B. Deaver, Philadelphia, Pa. American Journal of Surgery, Vol. XXXI, No. 2, February, 1917, p. 17.

In a series of close on to 1,200 operations in six years for the relief of gall stones or biliary conditions, Deaver finds that recurrence takes place in about 4.7 % of the cases. The most common causes of recurrence after cholecystostomy are stone or stones in the gall bladder, adhesions, and stone or stones in the common duct. Less frequent causes were found to be stricture at the papilla of Vater, biliary fistulas, internal and external, interstitial pancreatitis, and pancreatic lymphangitis. Only four of the recurrences took place after a cholecystectomy: two for stricture of the pancreatic portion of the common duct or the duodenal orifice, and one each for stone in the common duct and postoperative fistula. This argues favorably for the more radical operation, especially as the operative risk of the two operations, cholecystectomy and cholecystostomy, other things being equal, is about the same, i. e., between 8 and 9 %.

In addition to the failure to remove all the stones at the primary operation, a number of cases showed renewed infection as the cause of the recurrence. This adds emphasis to the plea of the surgeon for early operation in gall bladder conditions. In long-standing cases the ducts become dilated and stones lodge in the recesses so that it is impossible to detect or to remove them all at the first operation. Renewed infection and the constant irritation is also apt to lead to malignancy. This is supported by the fact that about 85 to 94 % of primary, and only 15 to 16 % of secondary, carcinomas of the gall bladder are associated with gall stones, thus indicating that gall stones are the cause and not the result of carcinomatous degeneration. Other results of neglected gall stone cases are myocarditis, kidney degeneration, as well as degeneration of the blood vessels, diabetes, hematogenous infection, etc.

Disease of the biliary passages is essentially surgical and the most common cause of recurrence is late operation.

Gonorrheal Lymphangitis of the Penis. J. U. Reaves, Mobile, Ala. American Journal of Surgery, Vol. XXX, No. 12, December, 1916, p. 402.

Gonorrheal lymphangitis (called "bull head clap" by the laity) is the most troublesome and frequent form of penile lymphangitis. It most often occurs between the onset and fifth day of the discharge from the meatus, and is characterized by edema and swelling of the loose skin forming the prepuce, eversion of the meatal lips, with reddening of the surface of the glans and skin of penis involved. The severity of this condition depends upon the length of time it has been allowed to progress plus encouragement the patient has given it by the use of astringents, etc., to retard the already inadequate drainage.

The cause is the absorption of toxins from gonorrheal pus due to improper drainage from the anterior urethra caused in most cases by (1) an abnormally small meatus size of 20 French and under, (2) vigorous use of astringent injections, or (3) coitus while suffering from an acute anterior urethritis.

Treatment should be directed toward establishing drainage and lessening the severity of the urethritis. Meatotomy should be performed if pressure caused by the edema will not interfere with keeping the incision open, making the meatus as large as 25 French at least. Should the edema be too severe to allow the wound to be kept open with pledgets of cotton, direct your treatment to internal antiseptics in connection with local treatment. Instruct the patient to drink large quantities of water.

If patient can not go to bed, suspend penis with a "T"-bandage until the acute symptoms disappear. Have patient get all benefit possible from moist heat. Refrain from giving sedatives to control pain and troublesome erections, as they encourage epididymitis.

Preliminary Treatment for Prostatectomy in Unfavorable Cases. Hugh H. Young and William A. Frontz, Baltimore, Md. The Journal of the American Medical Association, Vol. LXVIII, No. 7, February 17, 1917, p. 526.

Prostatic hypertrophy is frequently complicated by conditions which render immediate operation extremely dangerous; and the present low mortality following prostatectomy is due, in large part, to timely recognition of these factors and the institution of appropriate treatment for their correction. The risks from a clinical standpoint may be classified as renal, cardiac, cardiorenal, hypertensive and infectious. The renal risks are by far the most frequent and are secondary, as a rule, to urinary back-pressure and infection. The determination of the operative risk from the standpoint of renal efficiency requires an accurate knowledge of the functional capacity of the kidney; and in securing this information, the phenolsulphonephthalein and blood-urea tests have proved eminently satisfactory. The preliminary treatment in this type of case is usually directed toward the relief of urinary retention, and catheter drainage of the bladder is the rule. Water is forced in large quantities, the diet is carefully regulated and urotropin is given as a routine measure. Repeated 'phthalein tests usually show a gradual improvement in renal function, and when this becomes stationary, operation can be carried out with little risk from the renal standpoint. The cardiac and cardio-renal cases frequently require prolonged study and the improvement is often extremely slow. With rest in bed, digitalis, regulations in diet, etc., the condition usually improves to a degree rendering safe operation possible. The role played by infection in prostatic hypertrophy is an important one, and in 60 % of our cases, urinary

infection was present at the time of admission to the hospital. In view of the fact that the retention catheter forms so important a part of the preparatory treatment, extreme care must be exercised in its employment. The low operative mortality where attention has been paid to the factors enumerated above is proof of the value of the preliminary treatment.

Further Observations on the Use of Thorium in Pyelography. J. Edward Burns, Baltimore, Md. The Journal of the American Medical Association, Vol. LXVIII, No. 7, February 17, 1917, p. 533.

Since the publication of the preliminary report on the use of thorium solution as a pyelographic agent, many experimental investigations as to its pharmacologic action and much clinical evidence after its employment in one hundred and eighty-five cases have led to the conclusion that it fulfills all the conditions requisite for an ideal pyelographic medium. It is non-toxic (within the ordinary limits of usage), non-irritating, opaque to the Roentgen ray, giving a splendid outline of renal pelvis and ureter, and is inexpensive, being about one-third the cost of collargol. The solution contains the double citrate of thorium and sodium, sodium citrate and sodium nitrate. It is a clear watery solution (therefore perfectly clean) which is not bactericidal and should therefore be sterilized before being used. For pyelograms the 15% solution should be used and for cystograms the 10% solution. The gravity method should always be employed in the introduction of the solution into the renal pelvis and ureter. Great care should be exercised in making pyelograms in cases where there is marked impairment of renal function, for, in such cases, the introduction of any solution into the renal pelvis might so disturb the already markedly impaired functional activity of the kidney as to cause the onset of uremia. This solution, either by its adhesive properties, by its capability of being absorbed or by means of its comparative density, accentuates the shadows of calculi in the urinary tract when they are not ordinarily seen in the plain Roentgenogram.

The So-Called "Gonorrheal Heel." Charles C. Mapes, Louisville, Ky. American Journal of Surgery, Vol. XXXI, No. 2, February, 1917, p. 34.

After denying in toto the proposition that exostosis upon the calcar pedis can be produced by invasion of Neisserian diploccocci, the author concludes:

"1. That the terms gonorrhea (i. e., a flow of semen), blennorrhea and blennorrhagia (i. e., a flow of mucus), urethritis (i. e., inflammation of the urethra), gonococcus (i. e., semen berry), as at present almost universally employed, are totally inexact, inexpressive and fallacious, and should be eliminated from medical nomenclature;

"2. That likewise the word gonorrheal (i. e., belonging or relating to gonorrhea), wherever and however used, is distinctly erroneous, hence the expressions gonorrheal heel, gonorrheal exostosis, gonorrheal arthritis, gonorrheal iritis, etc., are ridiculous and absurd;

"3. That 'gonorrheal exostosis of the calcar pedis' literally interpreted would be equivalent to saying that the afflicted individual had a flow of semen from the os calcis producing an outgrowth of the osseous structure, and most assuredly the rankest fanatic in the world will agree that this would be an anatomic, physiologic and pathologic impossibility;

"4. That it has never been definitely demonstrated that the Neisserian diplococci are capable of inciting hypernutrition with consequent exostosis or osseous outgrowth in any anatomic situation, although systemic invasion of these microorganisms is frankly admitted;

"5. That even were it possible to isolate the Neisserian displococci from osseous excrescences excised from the calcar pedis or elsewhere, the causal relationship would by no means be thereby established, since exostoses have been encountered with greater frequency in patients not the subjects of Neisserian disease;

"6. That the occurrence of osteophytes or exostoses upon the os calcis or elsewhere during or following an attack of Neisserian urethrorrhea is absolutely no proof of a necessary existing relationship, and to attribute the former to the malevolent influence of the latter is merely an expression of ignorance upon the part of the observer;

"7. That it has not been shown that exostoses or osteophytes in situations other than the calcar pedis ever occurred from invasion of the Neisserian diplococci, nor has it been demonstrated that these microorganisms possess an elective or selective affinity for the os calcis, as inferentially contended by certain authors;

"8. That it appears strange that examination exostosis upon the calcar pedis in a female wrereof the literature reveals no recorded instance of any definite relationship was claimed between the osseous lesion and Neisserian disease, although it is well known other tissues embraced within the female organism are not exempt from the ravages of the diplococci of Neisser, in some instances there being infinitely greater structural damage than in the male;

"9. That even admitting the premise that: (a) 'periostitis, (b) hypertrophic osteoperiostitis, and (c) osteomyelitis' may be due to invasion of the Neisserian diplococci, the production of exostoses or osteophytes (i. e., new osseous formation) still remains unexplained; the pertinent fact can not be ignored that during and following the inflammatory lesions mentioned osteohelicosis rather than osteogenesis almost invariably ensues; and

"10. That, finally, 'gonorrheal heel' is equally as inexpressive and unintelligible as hematogenous kidney, acute abdomen, chronic appendix, and a thousand other not dissimilar diagnostic and anatomico-pathologic fallacies."

(Continnued on page 441)

EYE, EAR, NOSE AND THROAT

INDICATIONS FOR THE REMOVAL OF THE FAUCIAL TONSILS: A COMPILATION*

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Within the last few years there have appeared a number of articles by such well-known men as McKenzie, Fridenberg, Swain, McKinney and Blum, in which the tonsil operator is accused of massacreing the tonsil, butcher-like, just to satisfy his lust for blood. McKenzie says: "Never in the history of medicine has the lust for operation upon the tonsils been so passionate as at the present time. It is not simply the surgical thirst; . . . it is a mania, a madness, an obsession."

It occurred to me, as I read these criticisms, that such sweeping condemnations could emanate only from theoretic and speculative opinions, and not from clinical observation and experience. I do not believe it is the practice to remove healthy tonsils, but think that a great deal of the prejudice against their removal is due to excessive and poorly-done operations in clinics by hospital assistants and interns.

The arguments used in condemning the tonsil operation are, in the main, first, that because of its unknown function, the tonsil should not be removed lest its absence be detrimental to the economy; and secondly, that the operation is followed by a variety of accidents, among which may be mentioned death from hemorrhage, immediate or secondary, and injury to the voice.

T. H. Halstead, writing on "The Modern Surgery of the Tonsil," refers to the objection that has been made to tonsillectomy as being liable to cause serious hemorrhage, and then says: "Time and experience have shown that when tonsillectomy is perfectly and cleanly performed, leaving no tags or remnants, hemorrhage is, as a rule, less than when only a part of the organ is excised, and the control of the hemorrhage is easier."

H. A. Barnes, in his recent text-book on "The Tonsils," after referring to the change from tonsillotomy to tonsillectomy as one of the greatest advances made in the surgery of the nose and throat, remarks: "Nevertheless, it has met with great opposition in certain quarters, largely because of the mystery that appears to surround the question of the function of the organs."

C. F. Burkhardt, in his recent article on "The Function of the Faucial Tonsils and the Indications for Their Removal," after referring to the tonsil as a protective organ when in a normal condition, says: "When its condition becomes pathological, its function is perverted, and in place of being one of the sentinels of protection, it becomes one of the most dangerous portals for the entry of infectious material into the circulation."

This summer, in an effort to determine whether or not our section of the country is one of the "certain quarters" opposed to tonsillectomy, I wrote two hundred Southern laryngologists asking answers to the following questions:

1. What are your indications for the removal of the faucial tonsils (tonsillectomy)?

2. What accidents have occurred in your practice following tonsillectomy?

It was my original intention to discuss accidents referable to the operation as well as the indications. But since another paper deals with this subject, I shall use the replies to my second question for the basis of a future article. Eighty replies were received. I did not know what a large subject I had to deal with until I attempted to arrange the various answers.

One man says: "I believe that there are a great many tonsils removed that should not be removed, but, on the other hand, I believe that there are a great many that should be removed that are not." One does not consider their removal in children under eight, except when causing a great deal of trouble, while another

*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

believes every tonsil should be removed as soon as it is well-developed. One advocates the removal of all large or diseased tonsils after the seventh year, because it is his belief that they have no useful function after that age. Another says: "I believe the routine removal of tonsils (and adenoids) at the age of three or four years to be a scientific and desired procedure," while another terms routine removal mal-practice. One quotes Sir St. Clair Thompson as saying that the prime indication was that if you did not, somebody else would, and adds that this is entirely practical. Several say that they are compelled to remove tonsils apparently normal in condition to satisfy parents, teachers and medical advisers. One man writes that in this way he has had to remove them for reasons known only to God.

With one exception, every one of the eighty who replied exercises some degree of conservatism, while two go to the other extreme and declare themselves emphatically against tonsillectomy, except in rare instances.

CLASSIFICATION

It would be almost impossible to present the indications of these eighty men without some kind of an arrangement. If the arrangement I give is different from that to which you are accustomed, it is only because I could find no other way out of the difficulty.

Tonsils for which removal is indicated I have classed as, first, those causing obstruction; secondly, those associated with or causing ear disease; thirdly, those causing absorption; and fourthly, those that are the seat of malignancy.

Obstruction. — These symptoms may be divided into (a) mechanical interference with speech, singing, breathing, swallowing and with the patulousness of the Eustachian tube, and (b) reflex neuroses.

With reference to obstruction, twelve men give "obstruction" unqualified; twenty-six, "obstruction to breathing;" eight, "obstruction to speech;" one, "obstruction to singing"; four, "obstruction to swallowing;" six, "obstruction interfering with the function of the Eustachian tube," while one mentions "much interference with space."

Of the reflex neuroses due to obstruction, "asthma" is mentioned by two; and of "bronchial asthma in children," "chorea," "choking," "cough," "sensation of fullness," "pain," "vomiting" and "laryngospasm" each is given once.

Referring to increased size, twenty-one specify "large," "enlarged," "hypertrophied," "very hypertrophied" or "hyperplastic" tonsils. Inasmuch as this class of tonsils causes obstruction, we may include them under the head of tonsils causing obstruction.

Ear Disease.—With reference to ear disease, other than mechanical interference with the function of the Eustachian tube, "ear troubles" is given by half a dozen men; "middle ear disease" by two, and "chronic aural troubles," "involvement of the ears," "impaired hearing," "beginning deafness," "deafness," "O. M. P. A.," "O. M. C. A.," "O. M. C. C." "O. M. C. C. in adults," and "after every case of O. M. P. A. and O. M. P. C.," each by one.

Absorption.—Symptoms due to absorption may be divided into (a) local and peritonsillar infections and (b) general systemic infections.

Under local and peritonsillar infections, we have acute and chronic inflammations of the tonsil, peritonsillar abscess and inflammation of the adjacent mucous membranes of the nose and throat. With reference to inflammations of the tonsil, "diseased tonsils," not qualified as to kind, is given by thirteen men; and "recurrent," "repeated" or "frequent" attacks of acute inflammation by forty-seven. "Diseased throughout its structure" is given once. Ten men mention "chronic inflammation" or "chronic tonsillitis," while "cheesy mass in crypts," "cheesy material" or "debris in crypts," which is given as a symptom of chronic inflammation by Barnes, is given by sixteen. A number of men allude to the innocent-looking tonsil, which, if examined closely and a careful history be taken, turns out to be one of the worst diseased.

Quinsy, or "peritonsillar abscess," is given by eighteen. Inflammation of the throat, such as "chronic sore throat," "chronic catarrhal fauces," "bronchitis," "acute laryngitis," each mentioned once, and "pharyngitis" and "laryngitis," each mentioned six times, are included under the head of local infections, as are "recurrent rhinitis," "nasal catarrh" and "pa-

tients who catch cold easily," which are each mentioned once.

In recording the replies relating to systemic infections, I have placed the indications in five groups. The first is rheumatism, or "arthritis," which is given by twenty. "Recurrent acute rheumatism" is mentioned by three. "Acute chronic rheumatism," "acute rheumatism following acute tonsillitis" and "constitutional troubles typified by arthritis" are each mentioned once. The second is nephritis, which is given by eight. The third is "cardiac lesions," which is indicated by five. "Tuberculosis," the fourth, is held by half a dozen men to be an indication for tonsillectomy, while "tuberculous glands with no lung involvement" is thought so by one. In the last I have included such general terms as "auto infection," "auto infection evidenced by constipation in childhood," "irregular fevers of childhood," "systemic absorption," "focus of infection," "auto-intoxication," "septic symptoms," "toxemias," "constipation," "intestinal disturbance," etc., which collectively are mentioned by twenty-one. "Cervical adenitis," "enlarged cervical glands," "large glands," or "large cervical or submaxillary glands" are given by twenty-three men; and "chronic adenitis" and "large glands along the sterno-mastoid muscle" are each mentioned once. In this connection it is interesting to note that two men associate cervical adenitis with submerged tonsils; two with large tonsils; two with acute tonsillitis and one with both large and submerged inflamed tonsils.

Miscellaneous.—Other indications which do not readily lend themselves to classification include "unhealthy," "anemic" and "poorly nourished" children, which are mentioned half a dozen times. Three men remove tonsils at the same time they remove adenoids, and one removes them for "mouth-breathing." "Vincent's angina" is given once, as is "goitre." Three eye conditions are given: "idiopathic iritis," "idiopathic choroiditis" and "idiopathic uveitis," the first by two men, the others by one.

Malignancy.—Only three men give malignancy as an indication for removal, yet it is no doubt true that every one would advise immediate operation.

One man advocates tonsillectomy in those who, for any reason, can not obtain regular and proper treatment.

Two men remove tonsils of singers to improve their voices.

RESUME

Summarizing, we find the principal indications for tonsillectomy to be:

1. Obstruction interfering with speech, singing, breathing, swallowing and the function of the Eustachian tube—the large tonsil.
2. Recurrent tonsillitis.
3. Recurrent peritonsillar abscess.
4. Cervical adenitis.
5. Debris in crypts, the chronically inflamed tonsil.
6. Great variety of systemic disorders ranging from arthritis and endocarditis to "peevishness." It is with this class that the individual observer's diagnostic powers are put to the test.

Each case should be studied critically and not merely examined superficially. "The tonsils may be pronounced sound only after a deliberate and painstaking examination, involving the use of the microscope and tests of blood pressure. To be safe in our diagnosis we must start with the presumption that some abnormal condition is present."—*Gile.*

Comparison of the indications given in answer to my inquiry with the indications given in text-books and numerous articles in the literature, have led me to the conclusion that we are striking a happy medium, midway between the extremists who would remove tonsils upon all occasions and those who condemn the operation except for malignancy and upon very rare occasions.

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Editor's Note.—This is one of a symposium of ten papers, two of which appear in this issue. The other two, with all the discussions, will appear in future numbers.

EXPERIENCES WITH THE BECK-MAKUEN TONSIL OPERATION*

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The tonsils as a menace to human health have been recognized since the time of Hippocrates and Celsus, both of whom recommended that they be evulsed with the fingers when diseased. Some references in ancient books on Hindu medicine seem to indicate that they recognized the difference between malignant and benign disease of the tonsil and practiced the operation of tonsillotomy.

Hippocrates explained the nature of the tonsils as being round bodies placed on each side of the throat to absorb the secretions from the head and send them back there again and to do likewise for the vapors. A review of our present knowledge of the function of the tonsils in the light of some of the most modern discussion leads us almost to the conclusion that we have not advanced beyond the knowledge of Hippocrates on this particular point.

The pathology we feel comfortably certain about. The indications for removal are fairly well defined in the minds of the majority of operators. The function of the normal tonsil in a normal throat is surrounded by a haze that gives pause to any man who is called upon scientifically and specifically to define it. That they are lymph nodes with efferent vessels connecting them with the cervical lymph nodes and without afferent vessels anatomically identical with similar vessels of other lymph nodes seems to the writer to be the most plausible. Their afferent vessels are represented by the tonsillar crypts, but are in reality the currents of air and saliva within the mouth. As these currents flowing toward the tonsils are far more frequently foul and infected than are the lymph currents flowing to any other node, therefore it follows that just so much the more frequently do they become diseased and a menace to the health of the individual.

The more closely we study the action of the tonsil under conditions of inflammation and the more nearly we work out the exciting cause of the inflammation, the more does its function as a protective barrier seem to be identical with that of the other nodes of the lymphatic system.

That the tonsils are the portals of entrance of systemic infections of various kinds can not be denied in the light of much clinical proof, but it is conceiveable that before they can become such their resistance to the entrance of infection has

*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

been broken down by being forced continually to do battle against invading organisms brought to them by the secretions of the mouth and currents of air. A careful hygiene of the mouth, both during eruption of the teeth and for all time thereafter, might serve to preserve the tonsils in a larger number of cases than now seems possible. The tonsil most probably has an internal secretion, as have other so-called ductless glands, but the function of this is either lost early in life or else readily assumed by other lymphoid elements of the body.

That the subject of the physiology of the tonsil as related to the general system is still far from fully understood we are all ready to confess, but the consideration of their relation to the normal movements of the throat in vocalization is more readily appreciated.

The normal tonsil, lying as it does between the palatoglossus and palatopharyngeus furnishes these muscles with aid and support in their action upon the soft palate during its various movements in phonation. The abnormal tonsil seems to interfere with phonation more than it helps and its removal is justified on this ground as well as others.

In a most careful paper, "A Study of the Physio-Mechanical Function of the Faucial Tonsil," by Kenyon and Kradwell, some of the conclusions reached are that tonsillectomy serves to destroy not merely a possible lymphatic function of the tonsil, but also to disturb and destroy an important physio-mechanical function and that more or less impairment of action of the depressor palatal muscles must occur in practically all cases following tonsillectomy. Let us acknowledge the truth of these conclusions, but is it not possible that the diseased tonsil may cause such abnormality or limitation of movement of the palatal muscles that its removal, while not restoring an absolutely normal type of movement, yet would allow of movements of a type far preferable and more nearly physiologically perfect than those existing prior to its removal? This latter view is maintained by the majority of operators today.

H. Curtis has never lost sight of anything that would impair the human voice, yet he says that the existence of the tonsil in adults serves no good purpose and advocates their removal in any case where they give rise to the slightest trouble.

G. H. Makuen says that the popular belief that the removal of tonsils is injurious to the voice is well founded, and it is due in large measure to careless or bad surgery. He further says: "I have tried to show how any obstructions to the actions of these (palatopharyngeal) muscles, such as enlarged or diseased faucial tonsils, or adhesions and contractions following operations upon the tonsils, which may limit the free action of the palatapharyngeal muscles, must be prejudicial to artistic phonation." The opinion of two such authorities as Curtis and Makuen, whose word concerning all that affects the human voice is of the weightiest, must be heard with respect and the writer's own clinical experience but serves more firmly to convince him of the truth of their statements.

Before the performance of an operation the surgeon may well ask himself two questions: (1) Is the operation in contemplation indicated by the pathological conditions present in the patient? (2) If operated upon and not cured, will the patient leave in a condition no worse than he was when presenting himself for treatment? When these questions can be answered in the affirmative we may safely undertake the operative work, assuming that small percentage of risk of failure or loss of life that attends all surgical procedure.

The indications for removal of the tonsils are pretty well defined and are well and briefly stated by Phillips in his "Diseases of the Ear, Nose and Throat." It has been frequently my experience that the indications are not left to the rhinologist, but a patient is referred by the internist with instructions to remove the tonsils, as they are the seat of a focal infection. It gives me pleasure to add that it has been of the rarest occurrence that I have had to differ from the diagnosis of the internist.

Tonsillectomy is the choice of modern operators, though it is but a matter of a few years that such has been the case. In a discussion before the New York Academy of Medicine, 1906, on the merits of a new tonsil snare, opinion was about equally divided between the snare and tonsillotome.

The discussion gives no evidence of ad-

vocating complete removal as we now know it. Ballenger, in 1901, was an advocate of removal of the tonsil in its capsule, and Pynchon as much as thirty years ago advised entire removal of the tonsil down to its capsule.

The choice of operation for removal of the tonsil depends upon a variety of things. We must consider what is best for the patient immediately in hand, both as regards anesthetic to be used and ultimate results to the health and general well-being of the individual. All of us should be skilled in more than one form of operative procedure. The individual preference of the operator largely influences a choice, for he is apt to be skilled in one operation more than another, and in the majority of cases this is the best operation in his hands.

After passing through all forms of the operation for complete removal of the tonsils the technique known as the Beck-Makuen has been finally settled upon as the one most useful to the writer and gives in his hands the best results.

Makuen in various papers upon the subject of the surgery and anatomy of the tonsils has so forcibly set forth his views and conclusions that quotation from his work is indispensible in this connection. He says:

"An intracapsular tonsillectomy, as I have used the expression, means a tonsillectomy in which the tonsil is entirely removed, while the major portion of the capsule is left in the fauces where it naturally belongs and where it completely lines the tonsillar fossa. On the other hand, an extracapsular is one in which the entire capsule is removed, leaving an opening through the intrapharyngeal aponeurosis into the deeper regions of the neck and exposing the superior constrictor, the palatoglossus and palatopharyngeus muscles. * * *

"I am convinced, however, that the capsule does not exist as a distinct entity like the capsule of the kidney for example; but as Dr. Patterson says, it is merely that portion of the intrapharyngeal aponeurosis or pharyngo-basilar membrane into a recess of which the tonsil develops and to the adjacent portion of which it attaches itself with increasing firmness during its development. * * *

"The thin inner layer, however, has become so much a part of the tonsil that it is quite impossible to separate the two; but when the separation between this thin inner layer and the deeper layer is begun at any point in the edge of the attachment between the tonsil and the capsule its entire separation is an easy matter. * * *

"An intracapsular tonsillectomy, therefore, is one in which only a thin layer of the intrapharyngeal aponeurosis or capsule is found adherent to the tonsil after the operation; whereas, an extracapsular tonsillectomy is one in which all the layers having been torn or dissected out *en masse* are adherent to the tonsil, leaving the window resection of the pharyngo-basilar membrane which I have described. * * *

"If we would avoid cicatrical contractions and palatal deformities, we must enucleate the tonsil, not only with the least possible traumatism, but with the least possible capsule, and I think I have discovered that an intracapsular tonsillectomy or a tonsillectomy in which the major portion, at least, of the so-called capsule may be left in the tonsillar fossa, is altogether within the realm of possibility. * * *

"This particular operation, however, is much more easily performed in young children and before the tonsil begins to appropriate the various layers of the fibrous membrane with which it is in juxtaposition. In the course of the development of the tonsil and of the individual in whose possession the tonsil is, a closer and closer union takes place between the tonsil and its adjacent membrane, and this closer union is the result of physiological as well as pathological processes."

There is a consensus of opinion among many observers who have examined hundreds of tonsillectomized throats that in the large majority there was a vicious contracture or deformity of greater or lesser degree as a result of the operation. These throats had not been operated upon by tyros or beginners in the work, but by some of the most experienced operators. If we are to conserve the highest vocal functions of our patients as well as their health, we must adopt an operative procedure that leaves the throat in as nearly perfect physical condition as possible, for in our work upon children we can not say when we may be dealing with a great vocalist or elocutionist of the future, and adults who are already thus gifted will avoid surgical intervention which might endanger their voices unless the menace to life and health becomes so great that the voice assumes a role of lesser importance.

A careful estimate of these considerations led me to try the Beck-Makuen operation for enucleation of the tonsils; and so fully did it meet the requirements of the majority of cases that it has been adopted as routine in my general anesthesia cases where it can be done in 98 % without difficulty. In using the term Beck-Makuen operation for this procedure with two snares we should not forget to give due credit to the work of Sluder, who first recommended the enucleation of the tonsil by displacing it forward and upward and with the aid of the alveolar eminence pass-

ing it through the opening in a Physick tonsillotome which he modified to suit this technique. The Beck snare, though straight, is used after the manner of the Sluder tonsillotome.

A great aid to the work of removing tonsils is the use of some form of apparatus which gives a continuous stream of warm ether all during the operation and a suction pump to remove the blood and secretions from the throat. These two things have been the greatest additions to the technique of the operation I have ever adopted.

After removal of the first tonsil all blood and secretions are sucked away and the tonsillar fossa inspected as it is held open by some form of retractor, and such vessels as do not stop bleeding promptly are caught and twisted or tied. Having been assured by careful inspection that all bleeding has ceased, a small gauze tampon, loosely rolled and tied in the centre with a thread, is put into the tonsillar fossa, the thread coming out of the mouth on the same side and held by a small pair of forceps. The same procedure is then gone through in removing the second tonsil and making the toilet of the fossa, after which the adenoids, if any be present, are removed.

The blood following the adenoidectomy is sucked away and under inspection all loose tags cut off and when all bleeding has stopped the patient is returned to bed.

Since adopting this procedure in March, I have done 200 operations with it and have reached some conclusions that are gratifying. The ages of the patients varied from 4 to 40 years, the majority being children between 9 and 15. The actual amount of bleeding at the time of operation is less than in the cutting operations and the number of cases requiring torsion or ligature to stop bleeding is small. I had five such cases, in three of which the application of forceps for a few minutes sufficed; two others required a ligature. The two on whom ligature was used were children, as was one on whom torsion was required.

The location of the bleeding point in all cases has not led me to agree with J. L. Davis, who says that in every case following the enucleation of a tonsil the artery of the tonsil can be demonstrated in the upper part of the fossa by retracting the superior margin of the anterior pillar. In some of my cases I could demonstrate this point and in one case a ligature was applied there, but I demonstrated bleeding from the anterior pillar and middle of the fossa more often than from this point.

I am satisfied that the contention of Makuen that a major portion of the fascia can be left as a lining for the tonsillar fossa is correct, for, after a thorough drying of the fossa, the smooth, glistening fibrous layer can be demonstrated and is in marked contrast to the muscular fibres of the superior constrictor as seen after removal of the entire capsule. Inspection of the removed tonsil shows a very thin capsule with no loose tags and rough places. The pillars have mucous membrane covering them up to their edges. I have had no secondary hemorrhage and less complaint of post-operative soreness than with any other operation. Ninety-five per cent. of the children and 75% of the adults eat comfortably a soft diet twenty-four hours after operation. Whether it is due to the protective barrier afforded by the aponeurosis lining the fossa or the removal of secretions and prevention of their being swallowed or aspirated into the lungs, seems impossible to determine; but whatever the reason the result was gratifying and this was that there were no post-operative complications in these cases except a few mild cases of acidosis, which recovered in a few days. The best method of dealing with acidosis is by prevention, giving alkalies up to within six or eight hours before operation and resuming them as soon as post-operative nausea ceases, also insisting that rice, oatmeal, potatoes, etc., shall form a substantial portion of the diet for a few days.

The general surgeon has often uttered against the laryngologist the reproach that he does nothing in his tonsil work to stop bleeding until it has become excessive and is an emergency measure. This reproach we can now repudiate and make the tonsil operation a safer and more surgical procedure than it has ever been. Hemorrhage is a real danger and should be viewed as such, for many fatal cases have occurred, though Ballenger says that in 9,000 cases he had but two of severe

bleeding, and Sluder, in a recent personal communication to me, says: "In the St. Louis Children's Hospital we operate only upon children with normal blood clots, and in 6,000 such cases we have not had a serious hemorrhage. In fact, it is very rare that they ever require attention after leaving the operating room. We give calcium if the clot is too slow."

This precaution of taking the time of blood coagulation as mentioned by Dr. Sluder is a valuable one and requires no elaborate instruments. It can be done with sufficient accuracy to give the desired information by placing a drop of blood upon a clean microscope slide and drawing through it the point of a small cambric needle which is bright, clean and sharp and noting the time that elapses before there is a stringing out of the blood on the tip of the needle.

In tying a vessel in the tonsillar fossa it is my practice to make a purse-string suture of No. 0 catgut, two loops above and two below the grasping forceps, then remove the forceps and tie. It will not slip off and if the bleeding point was in the grasp of the forceps it will control it. For the purpose of more readily passing the suture I have had made two needles, a right and left of the type of perineal or cleft palate needles, but very small. With them the suture can be passed without rethreading. The eye which is at the point carries No. 0 catgut. To tie down this ligature, the ingenious little forceps devised by Jervey for this purpose would doubtless be of much aid, though I have never used it.

In examining the throats of these patients subsequent to operation I have found no single case of deviation from the normal palatal curve or of adhesion or retraction of the pillar when the patients are made to gag or in any other way throw the palatal muscles into violent action. All the cases except twelve were in private practice and inspected several times after being operated upon. I have to thank Dr. A. I. Weill, of New Orleans, for some of the points in this technic which have proven very useful to me.

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Editor's Note: This is one of a symposium of four papers, two of which appear in this issue. The other two, with all the discussions, will appear in one of the next numbers.

OPHTHALMOLOGICAL CLINIC*

By H. H. Briggs, M.D.,
Asheville, N. C.

Case I.—This is a divergent squint in a hyperope. Divergence is more frequently found in myopia, especially if the refractive error is a causative factor. His corrected vision is poor, probably not more than 0.4, and he is in other respects a poor case with which to demonstrate the operation.

Before attempting to shorten a muscle—in fact to do any squint operation—it is needless to say that the case should be thoroughly refracted, the condition of the heterotrophia should be studied before, during and subsequent to the cyclopegia, and the amount of advancement predetermined. One should never begin the operation until this is done, nor should the amount of shortening (or lengthening in case of tenotomy) be decided upon at the time of operation, since the anesthesia, both general and local, the nervous state of the patient, the manipulation of the eye and muscles, so influence the action of the muscles during the operation as to make the appearance of the eyes unreliable and often misleading.

Standing at the side of the eye and patient next to the muscle to be operated

*Before Section on Eye, Ear, Nose and Throat, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916 (Clinic at Atlanta Medical College).

upon and with the speculum in place, grasp the subconjunctival tissues 2 to 7 mm. (depending upon the extent of the advancement) back of the tendon insertion, on the right border of the tendon (from you in case you are right-handed) and make with scissors the smallest possible opening beside the tendon to admit the tendon hook which is passed under the tendon and carried up against its insertion to be sure it is under the tendon. The hook is now passed over to the assistant, Dr. Stoddard. The clamp forceps previously loaded with the link is held in one hand, and the special tendon hook held in the other is passed down through the link and made to take the place of the hook held by Dr. Stoddard. It only remains, then, to draw the tendon up through the link, in this case 4 mm. representing 8 mm. of shortening. This amount would represent about 40° of rotation were it not for the action of the opposing externus, which we shall not in this case tenotomize.

It requires, as you see, only a couple of minutes to do the operation, and if 0.5 % cocaine solution is injected along the muscle there is absolutely no pain.

The patient says it has not hurt him at all.

Dr. Jervey has modified the special tendon hook, making a greater angle in the shank, which he says considerably improves it. I shall be glad to try Dr. Jervey's suggestion.

The link is left on ten to fourteen days, depending upon the amount of reaction. It must remain until the new advanced portion of the tendon becomes adherent to the sclera at the insertion.

Case II.—This is a convergent squint in a myope, and is as unusual as the first case which was a divergence in a hyperope. The myopia, I am told, is represented by a minus 3.0 D. S. lens which he has been wearing some time, sufficiently long to have had its influence upon the heterotropia. In this case the external rectus of the left eye will be shortened, the left eye being amblyopic. The same procedure will be followed as upon the internal rectus of the previous case. It is well to slightly over-correct, especially when you do not intend to tenotomize the opposing muscle. You draw the tendon with the overlying conjunctiva up through the link, say 3 mm., which should correct the estimated 25° of convergence. The boy says it did not hurt.

Case III.—This patient is so young that I thought best to have it given ether, although I often operate upon younger children than this with local anesthesia. It is a case of convergence, the eyes being emmetropic. The estimated deviation is 30°, and we shall shorten the muscle, say 6 mm., the loop of tendon being drawn up 3 mm. You notice that the link is already sunken into the conjunctiva and is hidden. It does not irritate the lids as it does not touch them.

In enumerating the good points of his operation, Dr. Savage forgot to mention that removing the sutures used in his operation is simpler than removing the link in my operation. But that is the only advantage, in my opinion, that sutures have over links. You can never be so sure of sutures holding the advanced tendon as you can of the link. If you compress the link sufficiently it stays and holds the loop until you remove it.

AUTHORS' ABSTRACTS

Surgery, Gynecology, Obstetrics and Genito-Urinary Disease

(Continued from page 432)

Reflex Retention of Urine. Arthur B. Cecil, Los Angeles, Cal. The Journal of the American Medical Association, Vol. LXVIII, No. 6, February 10, 1917, p. 440.

The author discusses the various causes of transitory post-operative retention of urine and touches briefly on the physiology of the mechanism of urination. He discusses also the psychical disturbances of urination, but aside from all of these types of retention he believes that rarely there may be a type of chronic retention of urine which is dependent upon some type of chronic irritation acting in a reflex manner, the mechanism of which is essentially the same as the transitory retentions seen so commonly following surgical procedures on the near-by structures to the bladder. Three cases are reported: one of chronic retention of urine in a woman cured by removal of a hydronephrotic kidney, two others in which chronic seminalvesiculitis was thought to be the exciting factor. In conclusion he discusses the differential diagnosis and treatment.

Use of Whole Blood in Hemorrhage. H. R. Oliver, San Francisco, Cal. California State Journal of Medicine, January, 1917, p. 13.

It was the original intention to deal with only the intramuscular injection of whole human blood. But it was found necessary to consider the different hemorrhagic diseases, to consider the cause of coagulation and the different theo-

ries advanced, and the treatment by means of corrective sera or serum products.

Almost every form of serum has been used, and from all good results have been reported. Among the sera used are rabbit, horse, antitoxic, normal human, citrated blood, pipetted blood, and whole human blood.

The injection of animal sera on account of the difference of species, by reason of the metameric protein content, are capable of sensitizing with the cardinal symptoms of anaphylaxis. The homologous sera do not, and rather tend to, be of distinct nutritative value, especially in malnutrition of infants. As normal serum takes time to separate out and soon becomes inactive by the formation of metathrombin, fresh rabbit serum is the best of the animal sera, but the same objection arises. However, it is less toxic than horse serum and does not sensitize so quickly.

To overcome the above fault, it has been demonstrated that the most efficient method is to obtain 20 c. c. of blood from a vein of a healthy person by means of a large Luer syringe, and to inject it immediately into the gluteal muscle of the patient. It is not painful, as the blood soon diffuses and leaves no bad results. It is so simple and the results so striking as to merit attention. It has been used in six cases of malena neonatorum with one injection only, procuring perfect relief and cure. It has also been used in other conditions of hemorrhage, as in duodenal ulcer in several instances, after the failure of lactates, horse serum, etc., with complete cessation of the hemorrhage and rapid recovery. Also it has been tried in hemorrhage with purpura in tuberculosis pulmonis with the best results. The author recommends it in all cases of this nature.

Observations on Certain Obstructions at the Vesical Orifice. Oswald S. Lowsley, New York, N. Y. Journal American Medical Association, Vol. LXVIII, No. 6, February 10, 1917, p. 444.

Obstructive tumors at the vesical orifice, exclusive of adenomatous hypertrophy of the prostate proper, are due in the author's series in 68 or 77 % of the cases to an hypertrophy of the subcervical group of tubules, in 10 or 12.5 % of the cases to an hypertrophic change of the musculature of the trigonum vesicae as it passes through the vesical orifice to join that of the urethra. In 4.5 % of the cases tumors arising from the subtrigenal group are present; 3.5 % of the cases show a fibrous stricture of the vesical orifice; 2.5 % have cystic conditions which cause obstruction; and there is only one case in this series which shows a true middle lobe enlargement. The same stimulation which causes an adenomatous hypertrophy of the prostate in most cases causes an overgrowth in the subcervical tubules and on account of the greater frequency of the occurrence of the latter condition it is assumed that the subcervical tubules respond to the stimulation more promptly than does the prostate itself. The prostate proper only atrophies when the obstructive mass is due to a fibrosis of the vesical orifice. The subcervical tubules are also atrophied in such a case and are found to be surmounted by many layers of fibrous tissue and to be infiltrated with many small round cells. Any obstruction at the vesical orifice which causes even a slight retention of urine should be treated promptly in order to relieve a condition which might become serious. The treatment should consist of a dilatation with sounds, massage, and instillations in cases of slight degree. In marked cases with considerable residual urine Young's punch operation, Chetwood's galvane cautery and the high frequency current may be used in selected cases. It is never desirable to subject the patient to a suprapubic cystotomy for a tumor at the vesical orifice unless it is accompanied by general adenomatous hypertrophy of the prostate gland.

Wounds in War and Methods of Treatment. A. U. Desjardins, Waterville, Me. Journal of the American Medical Association, Vol. LXVIII, No. 1, January 6, 1917, pp. 18-24.

The conditions under which the soldiers live and fight (in wet weather and deep and frequently muddy trenches in a soil previously under intensive cultivation) are ideal for bacterial growth, aerobic and anaerobic, and account for the general infection of all the wounds. The relief and care of the wounded, in a state of chaos during the early weeks of the war, was rapidly improved and brought to its present very efficient state.

The work of the surgeons at the front is greatly handicapped by the conditions of fighting, the large numbers of wounded requiring attention at one time, the necessity for rapid evacuation and the consequent inability to follow cases and see the results of their work.

At the present time the great majority of wounds are caused by high explosive shells, the jagged fragments of which have a pernicious tendency to introduce dirty clothing into wounds filled with contused, lacerated and sloughing tissues and extravasated blood, thereby providing ideal conditions for infection. Bullet wounds are now relatively infrequent, and because they have less tendency to produce widespread lacerations and to introduce dirt and clothing, their effects generally are not so extensive. The same is true of shrapnel.

The most serious complication associated with these injuries is infection,—usually of a mixed character. Tetanus and gas infection, because of prophylaxis and especially the great improvement in the system of evacuating and caring for the wounded, are much less frequent now than they were during the first few months of the war. The one great problem is infection. Many antiseptics have been tried, but it has been found that the method has more to do with the course of the wound than the antiseptic. The Carrel method, combined with the use of Daufresne's modification of Dakin's solution, has shown very good results. The important indications are: early and thorough exploration of the wound, removal of all foreign material, excision of sloughs, and ample drainage. Continuous irrigation is indicated during the period of suppuration, but as soon as the wound is clean, it should be discontinued and dry dressings substituted.

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Vol. X MAY 1917 No. 5

EDITORIAL DEPARTMENT

THE PHYSICIAN'S OPPORTUNITY FOR SERVICE

The mobilization of the vast physical resources of this country is a huge undertaking and presents, to every loyal physician, an opportunity for patriotic service heretofore not offered to the present generation of doctors. Modern medicine and surgery have established the fact that proper sanitation and hygiene should be given a place in the foremost ranks in any military activity on a large scale.

Our National Government, after a sad and retrospective glance into the pages of history recently written by the experience of the Spanish-American War, determined that this chapter, replete with death and disability from preventable diseases, should not be rewritten. The fly and mosquito, justly pronounced a serious menace to any community in times of peace, can be and must be forbidden entrance to any and all of our mobilization camps. The pale spirochete and the gonococcus of Neisser require equally rigid surveillance in order to hold to a minimum the ravages wrought by these unwelcome, yet ubiquitous hosts. To no one more than to the doctor do these plain facts appeal.

The numerical strength of the Medical Department of our present standing Army, even before the declaration of war, was deficient; now that war is upon us and with the determination by our Government of equipping and training an army commensurate with the dignity and rank of this Nation, there will be needed from 20,000 to 30,000 medical reserve officers. These men can and must be supplied from the physicians in civil practice. It should be clearly understood that the National Government desires to disturb the civilian doctor as little as possible.

One of the most important duties which has been undertaken by the various state committees for Medical Preparedness has been to catalogue and properly to appraise the medical talent in each state, so that undue hardship would not be served upon those men entering the Medical Reserve Corps. This information is now on file and at the disposal of the Surgeon-General of the Army. Those men who have received application blanks to join the Reserve Corps should fill them in promptly and forward them to Washington.

THE CALL FOR YOUNG PHYSICIANS

The older men of the profession can do much toward encouraging and stimulating the young men, more especially those not yet firmly anchored by family ties, promptly to enlist in the Reserve Corps; or, if their fancy dictates and their education and training is sufficiently broad, to join the regular Army or Navy. It is unquestionably true that the advantages offered by the Medical Department of the Army and Navy, both for patriotic service and for rapid promotion, have not been before, and will not soon again, be paralleled.

It was gratifying indeed to the writer, at the recent meeting of the Alabama State Medical Association, to witness the earnestness and zeal with which this subject was discussed, and to learn what splendid progress had been made in this work by

the State Committee for Medical Preparedness, of which Dr. J. N. Baker, of Montgomery, is Chairman. This one instance is, he is sure, but an index as to what is being done by every other like Committee in this country.

In this discussion, one factor in particular was superlatively stressed, namely, the sacred duty devolving upon those members left behind to care for and to preserve intact, in so far as this was possible, the practices of those men who went to the front. This factor of mutual aid and assistance must constantly be borne in mind, and when this spirit becomes properly operative, our armies, large though they be, will not be lacking in skilled medical men to guide their destinies.

THE S. M. A. COMMITTEE

At the request of the Council of National Defense, President Duncan Eve appointed Dr. Joseph Bloodgood of Baltimore, Dr. Richard Barr of Nashville, and Dr. E. L. Gilcreest, of Dallas, Tex., as the Committee from the Southern Medical Association. Dr. Bloodgood, who has been an enthusiastic member of the Medical Reserve Corps of the Army for a number of years, has sent a personal letter to the Editor, which is published under Correspondence in this number of THE JOURNAL. In this letter Dr. Bloodgood gives much valuable information for physicians contemplating entering the Medical Department of the Army or Navy. He also calls attention to the fact that Southern physicians have been slow to enlist, a condition that is greatly deplored.

The South should be well represented in both the Army and Navy. No region of the country is more patriotic and none has a higher class medical profession. Every physician under thirty, unless there are unusual conditions why he can not leave his present work, should enlist at once either in the Medical Corps of the Army or Navy or in the National Guard. The older men should also enlist at once in the Officers' Reserve Corps to be called upon when their services are needed.

Further information may be obtained from the Committee on Medical Preparedness from the Southern Medical Association, the State and County Committees of National Defense, or directly from Surgeon-General W. C. Gorgas of the Army, or Surgeon-General W. C. Braisted of the Navy, Washington, D. C.

THE CONSERVATION OF AMERICA'S FOOD SUPPLY

The appeal of President Wilson to the patriotism of all classes to serve their country in the work of their particular vocations, during the period of the war that has been forced upon us, touched a responsive chord in the heart of every true American citizen. In one of the greatest addresses in history the President pointed out that one who is efficient in his work, whatever it may be, and economical in his expenditures, is as much a patriot as the man who volunteers as a soldier; that the housewife in cutting down her household expenses, particularly her grocery bills, and in raising vegetables in her backyard, may serve her country as well as her husband or son who is called to the colors.

He appealed particularly to the farmers to raise larger food crops, because it is as necessary to feed armies and the civilian population as it is to manufacture guns and ammunitions. He wisely said that one of the best ways to aid our Allies, and thereby protect ourselves, is to supply food to the soldiers in the trenches in France.

The farmers of the South, as in other regions of the country, are responding to the President's call and never before have so much and such varied food crops been planted. In spite of this fact there is great danger of actual suffering from the want of food, even in our own country, because of the shortage of the 1916 grain

crops, and the food exports have reduced the visible supply to a very low point.

Perhaps the most serious danger lies in the scarcity of meats and other proteins. The Agricultural Department has recently reported a shortage of 100,000,000 pounds in our meat supply as compared to a year ago. That the food situation is serious must be admitted by any one who has studied the question and the conservation of the present supply before the 1917 crop is harvested is one of the great problems of the war. That it is also an important public health problem the experience of Germany is of sufficient proof. It is said that since meats and fats have almost disappeared from the German dietaries, tuberculosis and other diseases have increased enormously.

President Wilson did not appeal directly to the medical profession to aid in working out the problem of making a short food supply meet the normal, or even the excessive demands of the present situation; but there is the opportunity for physicians, who for good reasons can not enlist in the Army or Navy Medical Officers' Reserve Corps, to serve their country in the highest degree by instructing the public regarding the quantity and quality of food needed for the normal man.

Physicians know that the average man consumes at least three times as much meats, more than twice as much sugar and probably one-third more of bread, potatoes and other starchy foods than his nutritional needs demand. They know that if the American people would eat rationally and no more than their nutritional needs call for, the present food supply would be more than equal to the demands of war or peace; there would be no more meat and bread riots in New York and Chicago; nor would we have the present inordinately high prices for everything that we eat. Physicians also know that our efficiency would be greatly increased, that the ills of the average adult American would be reduced by perhaps one-third that which we now suffer, and that the average span of life would be lengthened by one or two decades—if we were educated up to eating the proper quantity and quality of the foods necessary to maintain health and vigor.

HOW EACH PERSON MAY HELP

If the average person could learn that in eating meat more than once a day he is not only aiding in keeping up the price of that necessity, — thereby taking meat out of the mouths of those who need it most, i. e., the laboring classes, who can not buy it now,—but that he is actually injuring himself by taking into the body more protein than he can assimulate, he would be willing to do his part to solve the meat problem. If he could learn the well-established fact that one egg for breakfast, without bacon, ham or other meat, is as much protein as is needed for the morning meal, and that in eating a light breakfast consisting of fruit, cereal, one egg, bread and butter, he can think and work better than by starting out the day with an overloaded stomach, he would be willing to aid in keeping down the price of eggs, bacon and ham, of which the poor are now deprived. If he could, or would, learn the facts about sugar fermentation in the intestines and about the relative food values, and the amounts needed for daily nutrition, of vegetables, meat, milk, butter, the vegetable oils and other food products, he would become a healthier and a better man, not to mention having the glorious privilege that every true citizen should enjoy, of doing something for his country in its hour of need.

Never before has so much interest been manifested in dietetics. It is not unusual to hear laymen discussing food values; and their minds are open for information that

would make them give immediate aid in reducing the consumption of meats and other articles of food that we may be in dire need of in a few months. They might be induced to eat less as a patriotic measure. They would then learn that their efficiency and comfort would be increased by rational eating and they would continue to live properly after the war.

Physicians should take advantage of this wonderful opportunity to begin a propaganda for reform in eating. Impetus to the movement might be given if physicians would write popular articles on diet and nutrition for the newspapers and magazines. Addresses on the subject before business organizations and women's clubs would also reach a large number. The Department of Agriculture is already sending out important information on proper eating that is being read with profit by the public.

If the American people can be taught to live rationally, and if the farmers learn to raise larger food crops, the expense and the sacrifice of the present war will be justified. A noted minister said, "God did not cause this war, but he is using it for the betterment of mankind." It is evident that President Wilson is endeavoring to make the war, which was forced upon us, a blessing to Americans, as well as to make it an aid in establishing universal and permanent peace in a democratic Europe.

THE EXPERIENCES OF OUR ALLIES

With the various departments of the Government working at white heat to mobilize and equip a vast army and navy, and with the country actually at war, there can be little doubt that our troops as well as our financial and moral support will be offered the Allies as soon as they are available. Then the natural sequence of events will be the receipt of many casualties among our soldiers when they engage in actual battle. Hence, what has already been the experience of the English, French, Belgians, Italians, Serbians, and Montenegrins, we may well believe will be our own.

Professor William H. Welch* describes the conditions found among the Allies as observed during his recent trip abroad in the dual interest of the Johns Hopkins Medical School and the Rockefeller Institute.

Such of our wounded as will stand transporting will be sent back home to base hospitals here in America. It was to the United States during the Civil War, remarks Welch, that credit should be given for establishing special hospitals for the care of certain classes of cases, as for example the institution in Philadelphia for the study of nervous injuries and to which Drs. W. W. Keen and S. Weir Mitchell were assigned.

In Europe today there are separate hospitals for eye injuries, for the totally blind, for nervous disorders, etc. Not only are these classifications made, but likewise in such institutions men particularly skilled or interested in a certain subdivision of the work are given that kind of condition to handle. There are those engaged largely in eye surgery; others, brain surgery; still others, plastic work; while to other groups are apportioned neurological patients, heart cases, etc. Such a procedure must necessarily result in the greatest benefit to all concerned.

SHELL SHOCK

Dr. Welch's reference to the treatment of shell shock in the Maudesley Hospital is of particular interest.

This Hospital is entirely for the reception of cases of so-called shell-shock. I don't think

*Welch, Wm. H.: Medical Problems of the War, Bulletin of the Johns Hopkins Hospital, Vol. XXVIII, No. 312, April, 1917, pp. 154-158.

there is any group of cases so pathetic as these. I saw a ward with perhaps twenty-five soldiers, who were all victims of this terrible condition. They stand up when the physician makes his rounds. Most of them had continuous tremor with staring eyes, a look of terror, and blue, cold extremities. When examined, they show various manifestations which we are not apt to attribute to hysteria. Some are deaf and dumb and some are dumb. The disorders of the special senses are most remarkable. The disorders of the special senses are most remarkable. The condition is described under various names, such as shell psychasthenia or shell neurasthenia, but it is commonly called shell shock. So far as one can judge, they look on the whole to be rather inferior types both physically and mentally. I was told they were of the type that can not stand alcohol and were total abstainers in about 80 % of the cases. Two of the patients had never been wounded. There has been a good deal of discussion as to how many of the patients may be malingerers, and this has to be considered most carefully. There is no doubt an element of malingering in some of them, but it is impossible that the greater majority of them should be of this type. These conditions are tremendously interesting to the psychologist. I found Dr. Sherrington, of Oxford, devoting much attention to them. He called them disassociation of special senses. Meyer's view is that they are inhibitions from a tremendous disturbance of the consciousness of the personality of the individual, so that various nervous tracts are blocked for the time being. Some of the patients are treated by hypnotic suggestion with a good deal of success. Dr. Sherrington was telling me of a case in which the patient had been anesthetized and was cured by the anesthesia. Sometimes, when the patients go under the anesthetic, they regain their speech, and sometimes they begin to talk when they are coming out of it. Then they can continue to speak.

Elsewhere, Dr. Welch mentions another interesting class of work:

The removal of foreign bodies has become a definite specialty. I heard the other night of one surgeon who does nothing but go around to different hospitals and remove foreign bodies with extraordinary deftness. Most surgeons do not believe in removing foreign bodies, claiming that they do not do any harm. This man has a deftness which is said to be most wizard-like. The foreign body is located by X-ray pictures taken at different angles. He then goes in with extraordinary accuracy. He has a little electric magnet device at the end of his finger, with a telephone attachment to the ear. When he is within a certain distance of the foreign body it registers on the telephone.

There is much that can be learned from our Allies across the Atlantic. Let us learn from their failures and profit by their experience. Now is the time to prepare ourselves. As Dr. Welch very truly states it: "This is probably the first war where the soldiers have died to a greater extent from wounds inflicted by bullets and shells than from diseases." It is already, then, essentially a victory for medical science. Let us see to it that the American doctor proves as efficient as our foreign brethren.

THE EFFECT OF STERILE FOOD, AIR AND SURROUNDINGS

A recent article by Professor I. Kianizin, of the University of Odessa,* should prove of particular interest to pediatricians who are wont to throw up their hands in holy horror at the sight of an infant's eating food which has fallen upon the floor.

The paper referred to deals with the long-debated subject of the effect of sterilized food and air upon the new-born. The author tells us that the experiments of Nuttall and Tierfelder, in 1895-7, with Caesarianized guinea-pigs fed upon sterile food and supplied sterile air and surroundings, from which they concluded that micro-organisms were unnecessary for nutrition, were at fault, first because the air was not adequately sterilized, secondly because the observations were too few, and thirdly because in the longest instance they were only carried out for ten days.

Shottelius' work, in 1898 and 1900, with chickens hatched from eggs sterilized in bichlorid of mercury, and then fed upon sterile food and air, showed that the birds

*Kianizin, I.: "The effect on Higher Animals of the Sterilization of the Inhabited Medium, the Air and the Food." The Journal of Physiology, Vol. L, No. 7, December 15, 1916, p. 391.

increased only 24 % in weight the first 12 days (compared with 150 % in normal controls), and that they lost 20 % of the original weight during the next five days. None lived longer than 30 days, and most of them died much sooner. A point of great interest is that the sterilized chicks ate ravenously and were even larger than their controls, though they rapidly lost in weight and became very weak. Later, when Shottelius repeated his experiments and added B. coli communis to the food of the chicks, which were otherwise on a sterilized diet, their growth became more or less normal, which would seem to be opposed to the theory of Metchnikoff. That the death of the chicks in the first instance was not due to loss of weight is shown by the work of Chossat, Manassein and others, who observed that death from hunger requires a loss in weight of 45 to 57 % of body weight, whereas Shottelius' chickens lost only from 20 to 36 % of their original weight.

In Kianizin's investigations upon guinea-pigs, the air was filtered twice through heated sand, then passed through sterilized hygroscopic cotton-wool to cool it, and next through peptonized meat broth to test for sterilization. Furthermore, ample ventilation was assured by keeping the pigs surrounded by a volume of 50 litres of air, which was renewed every 25 to 50 minutes. His results showed, to his satisfaction at least, that micro-organisms in the air are essential to life, that these are normally taken up by the leucocytes to form an oxidizing ferment called oxydase or catalase, and that there is a decreased nitrogen assimilation under the conditions under which the experiments are performed.

However, the mere fact that certain air-born germs are useful to life, would not justify our flirting with the pathogenic variety, or in ceasing for one moment the fight against our arch-enemies, the typhoid bacillus, the malaria plasmodium, the white spirochete, the tubercle bacillus and their numerous allies.

AN INTENSIVE STUDY OF THE EFFECTS OF THE HOOKWORM INFECTION

In the last decade the South has entered upon a new era of prosperity, health and happiness. Probably no one single feature has been more responsible for this "dawning of a new day" than the great strides which have been made in public health and sanitation, and no one organization has done abler and more humane service in freeing the public from the bondage of disease than the Rockefeller Sanitary Commission in its campaign of hook-worm eradication.

The medical profession has been aware of the fact that many patients infected with hook-worm are mental, moral and physical defectives; and many of us have seen with great satisfaction the remarkable physical and mental growth following successful thymol medication, but we have the International Health Commission to thank for the first systematic and scientific investigation carried out under controlled conditions. Feeling the need of such investigation, in 1912, the Rockefeller Sanitary Commission and the United States Public Health Service undertook the task under the leadership of Dr. Edward K. Strong, Jr., formerly of the Columbia University and now of George Peabody School for Teachers, and Dr. C. W. Stiles, Professor of Zoology of the United States Public Health Service and Scientific Secretary of the Rockefeller Sanitary Commission.

Publication No. 3 of the International Health Commission describes the methods pursued in this investigation and the very interesting data collected concerning the effect of uncinariasis upon the mental and physical development of children. The conclusions are drawn from one hundred and fifteen cases examined in one county.

The tests were carried out with four groups: (1) non-infected cases, (2) infected and not treated, (3) infected and cured, and (4) infected and not completely cured. The tests as described are very practical. They comprise a thorough examination of the mentality and physical ability of the child from every viewpoint and the results tabulated in scores and percentages.

In a general way, the investigators reached the conclusion that hook-worm disease interferes with both the mental and physical development of children, that treatment alleviates the condition to a considerable extent and that the extent to which the normal status may be gained depends upon the age of the infection. Those children cured of a rather recent infection regain most of their mental and physical endowments while those with long standing infections are handicapped for life.

It is a pleasure to read of the thorough and ingenious manner used in collecting this data. The profession is indebted to the investigators for their contribution to scientific medicine.

DR. MARTIN RESUMES PRACTICE

Those who know the history of the Southern Medical Association will never cease to be grateful to Dr. H. H. Martin, of Savannah, Ga., for his untiring efforts to build up this great medical organization in the South.

As first President, and as Chairman of the Council since the first meeting in Birmingham in 1907, Dr. Martin has striven ceaselessly for the advancement of the Association so dear to his heart. During the months in which a number of operations were performed on his shoulder, which was injured in an automobile accident, while physically incapacitated to practice his profession, he accomplished some of the best work that has been done for the Southern Medical Association, and without a cent of remuneration or hope of reward other than the consciousness of knowing that he was working for a good cause.

The members of the Association will, therefore, be pleased to know that Dr. Martin has entirely recovered from the accident, that nearly cost him his life, and that he has resumed practice in Savannah.

CORRESPONDENCE

THE ARMY AND NAVY NEED YOUNG PHYSICIANS

Editor SOUTHERN MEDICAL JOURNAL:

I received a communication from Dr. Duncan Eve, of Nashville, Tenn., President of the Southern Medical Association, appointing me Chairman of the Committee on Medical Preparedness of the Southern Medical Association. The other members of this Committee are Dr. Richard Barr, of Nashville, Tenn., and Dr. E. L. Gilcreest, of Dallas, Tex.

I immediately conferred with the Associated Press and dictated a note to the local papers—the Baltimore Sun and American; and through the help of the Associated Press this notice has appeared in many of the Southern papers.

I conferred with Major Noble, of the Surgeon-General's office, and find that the membership of the Medical Reserve Corps through the states of the South is very small as compared to the numbers needed. If 1,000,000 men are called out we shall need at least 10,000 physicians, and we should have 12,000. In a few days I shall learn from the Surgeon-General's office the exact number required from each state and the number already enrolled from that state.

My appeal through the newspapers has stimulated immediate interest and I am receiving numerous applications, which are being forwarded at once to Major Noble, and he informs me by telephone today that he is receiving a number of applications direct.

I think it would be a good plan if you would issue an appeal in the next JOURNAL: That at the present time the Medical Reserve Corps has a larger proportion of older physicians than younger, and that at this time the demand is for younger graduates. Both the regular medical corps of the Navy and Army are deficient in membership from 200 to 500. Men who graduate this time can enter the Medical Corps at once. Men who have graduated and have had one year hospital training and are younger than 32 years of age, can enter the Medical Corps of

the Army. For the Medical Reserve Corps, or the new Officers' Reserve Corps, we need first medical men who have graduated in the last five years, especially those who have had hospital experience.

It is my opinion that at first we should concentrate on these three groups. The best results are apparently obtained by personal contact. You should encourage all the older and influential men in the profession throughout the South to see personally the younger physicians who belong in one of these three groups and urge them to communicate with the Surgeon-General's office of the Army or Navy, and ask for papers of application.

North Carolina has a larger percentage of its physicians in the Medical Reserve Corps than any other state of the South, at least this seems so from the figures up to date, and apparently this is due to the personal work of Dr. Long, of Greensboro, N. C.

I have personally studied the situation for two years, and very intensively the last few months, and I am quite certain of the essential feature of this personal element; and I am anxious that you, through the SOUTHERN MEDICAL JOURNAL, should give this information to the members of the profession throughout the South.

There is no doubt that every physician should join the Medical Reserve Corps. This does not mean, of course, that every physician will be called, but this will give the departments in Washington an opportunity to learn their credentials and classify them. In the first place, only the younger man will be called and those men to whom service will be the least financial loss. Later, as the Army increases, other men will have to be called. So it will simplify the work of the medical departments in Washington to have the names of all the efficient physicians and surgeons classified and indexed and available in their offices for emergencies.

When the Army is first called for mobilization, the members of the Medical Reserve Corps will be called upon to make the examinations. If in each state there is a sufficient number of Medical Reserve Corps officers, this work can be done at their homes without traveling, but if the number of officers is deficient it will be necessary to call Medical Reserve Corps officers from other states—a hardship to them. It is perfectly possible for each state, with a few exceptions, to look after the examination of troops in their own localities.

When the Army is mobilized into camps, Medical Reserve Corps officers will have to be selected to take care of them, to study camp hygiene, to prevent illness among the troops, and to take care of the sick. When the armies are ordered to active service there may still be another redistribution of the members of the Medical Reserve Corps according to their special qualifications and specialties.

There seems no question that the Medical Reserve Corps can be the first line of defense, and the physicians as a body should offer their services to the Government at once.

I am sending a copy of this letter to Dr. Duncan Eve, President of the Association, who undoubtedly will confer with you and the Council of the Southern Medical Association as to the proper presentation of this through the JOURNAL.

With kind regards,

Very sincerely yours,

JOS. C. BLOODGOOD.

Baltimore, Md., April 14, 1917.

ZINC SULPHOCARBOLATE AS A SUBSTITUTE FOR RESORCIN

Editor SOUTHERN MEDICAL JOURNAL:

Along with other physicians who have found resorcin, internally administered, most helpful in various fermentative states of the alimentary tract, I have been greatly inconvenienced by its practical disappearance from the market. As a fairly satisfactory substitute, however, zinc sulphocarbolate has been employed by me in two-grain doses. This agent can be given alone, or combined with alkalies or alkaline laxatives.

I have also found potassium permanganate a serviceable substitute for ichthyol as the cleansing medicament in gastric lavage.

GEORGE M. NILES, M.D.

Atlanta, Ga.

BOOK REVIEWS

The Diagnosis and Treatment of Abnormalities of Myocardial Function

With especial reference to the use of graphic methods, by T. Stuart Hart, A.M., M.D., Assistant Professor of Clinical Medicine in the College of Physicians and Surgeons, Columbia University; Visiting Physician to the Presnyterian Hospital in the City of New York. Illustrated with 248 engravings, 240 of which are original. The Rebman Company, New York, 1917. Price, $4.50.

This presentation of the most modern methods of diagnosis and treatment of cardiac disorders opens up to the general practitioner and internist a new field of thought in the management of these most common conditions and places on a practical basis the graphic methods of diagnosis, heretofore considered ultra scientific. After a few chapters on the anatomy, physiology and diagnostic technique, the author takes up the different abnormalities of function, such as [illegible], extra-systole, auricular [illegible], etc., and discusses the mechanism of their production, their clinical significance and prognosis, and in the closing chapters considers the indications for treatment of the various conditions. The author has culled from the voluminous literature on the subject the practical, useful facts, and adding the fruits of his own large experience, has presented the profession with a work which will stimulate more logical thinking concerning the management of cardiac disease.

The Medical Clinics of Chicago

Published bi-monthly by W. B. Saunders Co., Philadelphia and London, 1917. Price per year, $8.00. Cloth, $12.00.

The subject matter of these books is composed of clinical lectures taken down by stenographers and illustrated with X-ray pictures, pulse tracings and other devices to make the points of diagnosis and management clear. A wide range of cases, all of the most vital interest to the internist, are presented and discussed by Chicago's leading internists and specialists, such as Dr. Isaac A. Abt, Michael Reese Hospital; Dr. Frederick Tice, Cook County Hospital; Dr. Chas. L. Mix, Mercy Hospital, and Dr. James T. Case, St Lukes.

The strictly clinical character and practical application of these publications will prove of inestimable value to the practitioner in his effort to keep abreast of the rapid advances in modern scientific medicine.

(Continued on page 30)

A GOOD NAME

—be it "professional" or "trade"—
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The sterling reputations of America's medical men, from the leaders to the rank-and-file, WERE BUILT, step by step, by hard study and harder work.

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(Continued from page 450)

Traumatic Surgery

Traumatic Surgery. By John J. Moorhead, M.D., F.A.C.S. Adjunct Professor of Surgery, New York Post-Graduate Medical School and Hospital. Octavo volume, 760 pages with 522 original illustrations. Philadelphia and London: W. B. Saunders Co., 1917. Cloth, $6.50; Half Morocco, $8.00, net.

The appearance of so attractive a work at this particular time when the country is entering into a mighty war, is most timely, since traumatic surgery seems destined to play a prominent part among the duties of a large portion of the profession when our troops actually reach the front.

In the words of the author, "It will be noted that stress is placed on the routine use of but few antiseptics, the drainage of all wounds, the immediate and complete reduction of fractures, and non-reliance upon complicated splints or those that hide the part or are irremovable." He also stresses the open-air and sunshine treatment of all infected wounds, which he says obviate the necessity of skin grafting.

There is no doubt that many men doing a great deal of abdominal surgery, and doing it well, are not perfectly at home with a severe case of traumatism. Hence they will welcome this very useful work.

The book is very complete, is profusely illustrated and represents a distinct contribution to surgical literature.

SOUTHERN MEDICAL NEWS

ALABAMA

At a recent meeting of the State Board of Health, Dr. W. W. Dinsmore, formerly Assistant State Health Officer, was elected to succeed Dr. William H. Oates as State Prison Inspector.

At Selma, the authorities have begun the work of installing sanitary closets at those residences not in proximity to the sewerage main. It is expected that 1,500 will be installed during the summer.

At Birmingham, recently, six persons were bitten by supposedly rabid dogs in two days.

At Tuscaloosa, Professor E. B. Phelps, U. S. P. H. S., was recently engaged in investigations looking toward the establishment of a municipal pasteurization plant.

At Birmingham, according to a recent action of the Board of Revenue, the sliding scale of licenses has been placed on the physicians of Jefferson County.

Deaths

Dr. John Thomas Manning, aged 52, died at his home in Lineville on March 30.

Dr. Leslie Penn, aged 30, died at his home in Gadsden on April 9.

Dr. R. F. Monette, aged 46, of Greensboro, died while on a fishing trip near that city on March 15.

ARKANSAS

At Little Rock, on May 1, 2 and 3, will be held the forty-first annual session of the Arkansas Medical Society, the following officers presiding: President, Dr. M. L. Norwood, Lockesburg; Vice Presidents, Drs. L. L. Purifoy, El Dorado; J. M. Lemons, Pine Bluff, and W. R. Brooksher, Fort Smith; Secretary, C. P. Meriwether, Little Rock; and Treasurer, Wm. R. Bathurst, Little Rock.

At Little Rock, during the meeting of the State Medical Association, the Arkansas Tulane Alumni will hold their annual banquet.

Dr. George Evans Tucker, Bigelow, was married to Miss Rosalie Frolich on March 20.

Deaths

Dr. John W. Meek, aged 67, died at his home in Camden on March 31.

Dr. Joseph B. Payne, aged 83, died at his home in Hot Springs on March 27.

Dr. Samuel P. Collins, aged 72, died at his home in Hot Springs on March 16.

Dr. J. H. C. Cuffman, aged 53, of Gurdon, died in Little Rock on March 18.

DISTRICT OF COLUMBIA

At Washington, the National Board of Medical Examiners will meet on June 13.

Lieut. L. A. LaGarde, Jr., M. R. C., U. S. Army, and Miss Alice Hale, both of Washington, were married on February 26.

Asstistant Surgeon Louis H. Williams, M. R. C., U. S. Navy, was married to Miss May Warden, of Washington, on March 31.

Dr. E. C. Terry and Miss Lovett, both of Washington, were married on March 1.

Deaths

Dr. Walter W. Wilkinson, formerly of Washington, died at the Catawba Sanatorium, Va., on March 28 at the age of 40 years.

Dr. J. A. Moncure, U. S. P. H. S., died on March 14.

FLORIDA

Efforts have been made lately to change some of the existing laws governing the practice of medicine in the State. A composite board composed of one M.D., one Eclectic and one Osteopath is asked for. An effort is also being made to take the privilege of naming the Board of Health and the State Health Officer from the Governor and place it in the hands of the Board of State Institutions.

An effort is being made to create a State Board of Charities and Corrections of Florida and to remove the restrictions at present imposed upon school inspection.

At Jacksonville, on March 17, there was held the second annual meeting of the State Tuberculosis Association.

GEORGIA

At Rome, the Seventh District Medical Society met on the 15th of March, and the following are the officers elected for the following year: President, Dr. George B. Smith, Rome; Vice President, Dr. M. R. Richardson, Cedartown; and Secretary-Treasurer, Dr. W. L. Funkhauser, Rome.

At Atlanta, the Faculty of Emory Medical College gave a banquet in honor of the five seniors who have enlisted in the Medical Corps of the Navy.

At Augusta, the Richmond County Medical Society has recently adopted resolutions pledging that the members of the Society will look after the practice of those physicians who enter the medical service of the United States during the

(Continued on page 32)

Straining at Stool

is minimized, and often overcome, by the judicious use of **INTEROL**, which softens the fecal mass, and lubricates it all along the colon and rectum, past the sphincter, without irritating or abrading the mucosa.

Thus, there is less danger of ulceration; bowel evacuation is facilitated, and the patient made happy on this latter account alone,—entirely aside from **INTEROL'S** beneficial relation to the accompanying autotoxemia.

Also, **INTEROL** is of great comfort to the patient suffering from hemorrhoids or fissures, because it makes the fecal mass soft and plastic, so that it is passed with less difficulty and discomfort, and congestion is relieved. For these reasons, **INTEROL*** has been suggested as a *prophylactic* measure of these conditions, both for adults and children.

*INTEROL is more than "ordinary mineral oil": (1) it possesses *effective lubricating body* so that it clings to the fecal mass—INTEROL has efficient "spread and mix" properties (2) no "lighter" hydrocarbons to disturb the kidneys (3) no sulphur compounds to disturb digestion (4) no odor or flavor, so that the patient *can* take it and derive its benefit.

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No fat or grease. Samples and literature on request. Water-soluble. Collapsible tubes, druggists, 50c.

VAN HORN and SAWTELL
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(Continued from page 30)

present crisis and will send a monthly report to such members, together with all fees derived from such work.

At a recent meeting of the Elbert County Medical Society the following officers were elected for the ensuing year: President, Dr. W. J. Mathews; Vice President, Dr. A. C. Smith; Secretary, Dr. L. P. Eberhardt; Censors, Drs. A. S. Johnson, D. V. Bailey and A. M. Ward.

At Atlanta, a far-reaching sanitary campaign, which is to last one year, has been launched by the representative negroes of the City.

At Macon, recently, there was held a meeting of the Joint Committee of Health to institute plans for preventing the ravages of those diseases incident to the summer season. This Committee is composed of representatives from the City Council, Rotary Club, Chamber of Commerce and the Bibb County Medical Society.

There is general indignation among the physicians of the State over the introduction of the recent bill providing that a physician violating the law regulating the use and sale of liquor in the State shall have his license revoked and be forbidden to again practice medicine in the State.

Deaths

Dr. George K. Varden, aged 34, died at his home in Atlanta on April 11.

KENTUCKY

At Louisville, due to the inadequate supply of public health nurses in the State, the Tuberculosis Commission is taking steps looking toward the establishment of a post-graduate school of public health nursing.

Deaths

Dr. F. C. Wilson, Louisville, aged 77, died at Dunedin, Fla., on March 22.

Dr. J. W. Stone, aged 62, died at his home in Henderson on February 5.

Dr. H. W. Fulkerson, aged 32, Louisa, died at Lakeland on March 23.

Dr. John R. Harris, aged 77, died in Paducah on February 13.

Dr. A. A. Hurt died at his home at Clear Springs on February 12.

Dr. Richard Taylor, aged 53, was found dead at his office in Louisville on April 9. The coroner gave a verdict of suicide.

Dr. Joseph S. Morris, aged 73, died in Hickman on March 17.

Dr. W. S. Chandler, aged 55, died at his home in Frankfort on March 14.

Dr. W. T. Sutton, aged 80, died at the home of his son in Ashbyburg on April 9.

Dr. B. F. Thomson, aged 76, died at his home in Mt. Sterling on March 22.

LOUISIANA

At New Orleans, Dr. Edmund Moss, Medical Inspector of Public Schools, has recommended the changing of the rules governing vaccination, believing that the present regulations are too strict.

Assistant Surgeon-General H. R. Carter was in New Orleans in March superintending the studies being carried out in malaria.

At Tulane, according to a recent statement of Dean A. B. Dinwiddie, it is probable that the pre-medical course in the future will require two instead of one year's work.

Deaths

Dr. W. T. O'Reilly, aged 55, died at his home in New Orleans on March 9.

Dr. C. G. Coyle, aged 41, of Spring Hill, was killed in an automobile accident near Sarepta on March 15.

MARYLAND

At Baltimore, there have been a number of cases of cerebrospinal meningitis reported and active steps are being taken to control the spread of the disease.

At Baltimore, Dr. Lewis Sexton, Chief of Johns Hopkins Hospital Dispensary, has resigned and will be connected with the Hartford Hospital, Hartford, Conn., as its Superintendent.

At Baltimore, plans are being made for the meeting of the North Atlantic Sectional Conference of the National Tuberculosis Association to be held there October 18, 19 and 20.

At Baltimore, the Johns Hopkins Base Hospital Unit has been ordered to hold itself in readiness to serve with the Medical Corps of the United States Army.

At Baltimore, there has been raised $21,000 of the $30,000 required for the equipping of a Red Cross Base Hospital to be used in the present war.

Deaths

Dr. Clotworthy Birnie, aged 73, died at his home in Taneytown on March 16.

Dr. G. T. Simonson, aged 44, died at his home in Crisfield on March 10.

Dr. Elmer Newcomer, aged 27, died at Baltimore on March 11.

MISSOURI

At Springfield, on May 14 to 16, will be held the annual meeting of the State Medical Association.

At St. Louis, a clinic for cripples has been opened by the Missouri Division of the United Workers for the Cripples.

At St. Louis, the Women's Auxiliary of the St. Louis Provident Association is planning the opening of a summer health camp for mothers and their babies.

Dr. John Young Brown, St. Louis, was called to Washington recently to attend a meeting of the General Medical Board of the Council of National Defense.

Dr. C. Lester Hall was honored recently by a banquet given in Kansas City to commemorate the fiftieth anniversary of his entrance into the practice of medicine.

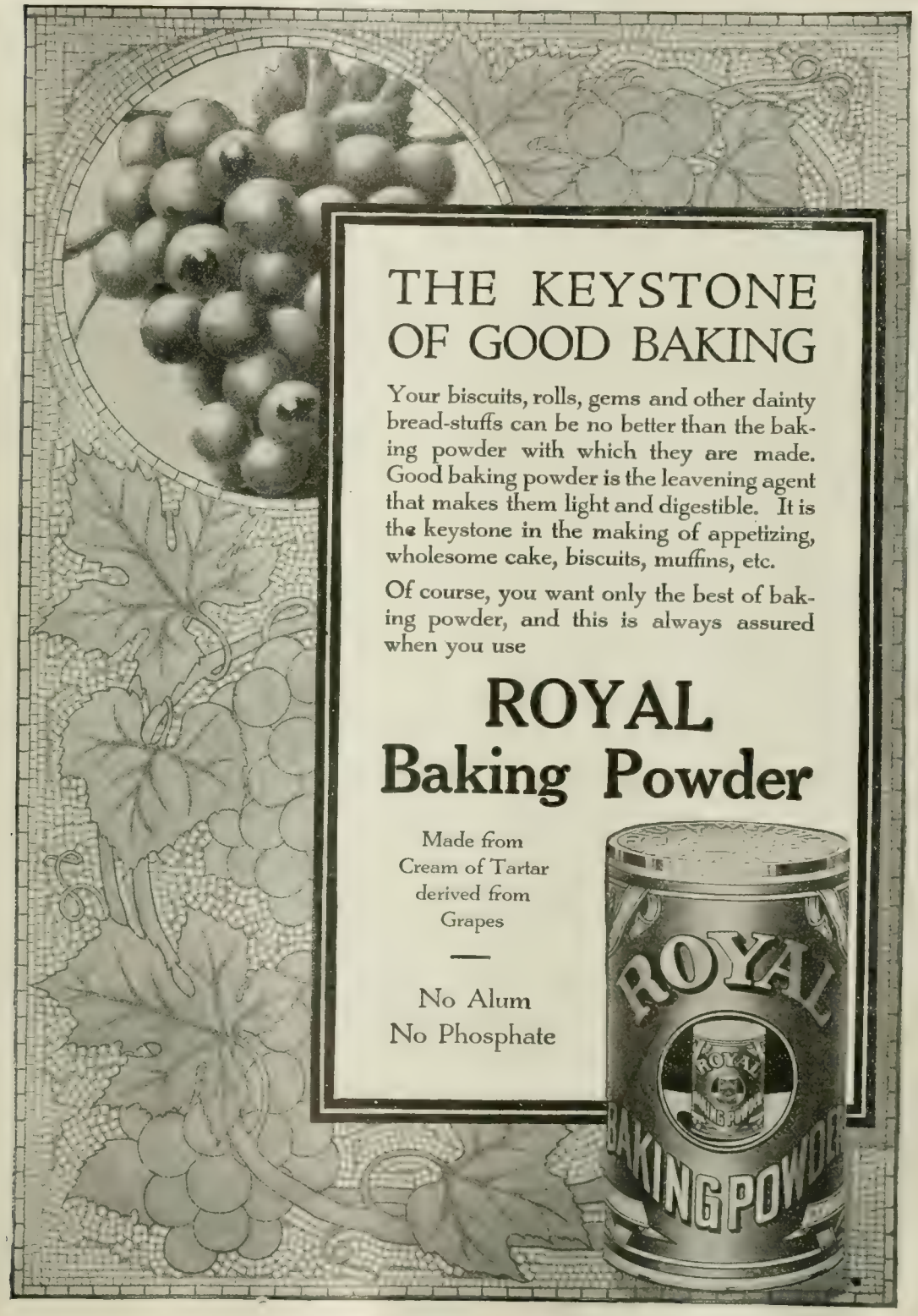
Dr. Samuel B. Scholz, Jr., has recently been elected Medical Director of the Missouri State Life Insurance Company.

Dr. R. B. Tyler, Joplin, was married to Mrs. Rosa Olson on April 6.

Dr. James B. Wright and Mrs. Emma Wynne Gillilan, both of Trenton, were married on March 1.

Dr. L. C. Randall, Licking, and Miss Alta Dunham, Craddock, were married on April 8.

(Continued on page 34)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ROYAL
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Made from
Cream of Tartar
derived from
Grapes
No Alum
No Phosphate
ROYAL
BAKING POWDER

(Continued from page 32)

Deaths

Dr. D. M. Shively, aged 43, died at his home in Kansas City on April 2.

Dr. E. F. Miller, aged 60, Verdella, died in Pittsburg, Kan., on March 21.

Dr. Charles E. Barnes, aged 44, Mountain Grove, died in St. Louis on March 24.

Dr. John T. Allen died in St. Louis on February 13.

Dr. J. E. Tucker, aged 62, died at his home in Lexington on April 9.

MISSISSIPPI

At Hattiesburg, practically the entire citizenship has been co-operating recently in an extensive sanitary campaign.

At Hattiesburg, William Alexander, a negro "Hoodoo" doctor, was fined $100 recently for obtaining money under false pretenses.

NORTH CAROLINA

At Asheville, the annual meeting of the North Carolina Medical Association, was held on April 17, 18 and 19.

At Durham, at the recent convention of the Tri-State Medical Association of the Carolinas and Virginia, the following officers were elected: President, Dr. D. T. Tayloe, Washington, N. C.; Vice Presidents, Drs. James K. Hall, Richmond, Va.; A. G. Brenizer, Charlotte, N. C., and J. R. Young, Anderson, S. C.; Secretary-Treasurer, Dr. Rolfe E. Hughes, Laurens, S. C.

At Durham, there will soon be built a memorial hospital for negroes. A gift of $40,000 was made by Messrs. James and Benjamin Duke, of New York, as a memorial to the spirit of service of the ante-bellum negro. This gift was met by a local subscription of $50,000.

Dr. Walter F. Cole and Miss Annie Louise Wharton, both of Greensboro, were married on March 20.

Dr. F. M. Bennett, Clinton, was married to Miss Caroline Pettus, Richmond, on March 20.

Deaths

Dr. Charles B. McDaniel, aged 28, died at the home of his sister at Rutherfordton on April 10.

Dr. W. J. Montford, aged 77, died at his home in Swansboro on March 31.

SOUTH CAROLINA

At Charleston, the annual clean-up campaign was begun on April 16.

At Charleston, the State College has instituted a premedical course of study.

At Columbia, Mrs. Annie L. Rembert has been employed by the State Board of Health as special agent of the State Tuberculosis Sanitarium. The recent legislature appropriated $40,000 for additional buildings at the Sanitarium.

At Columbia, on March 13, the South Carolina Anti-Tuberculosis Association was organized.

At Greenville, Dr. Fred C. Williams has been chosen as Superintendent of the State Hospital for Insane.

At Spartanburg, recently, there was organized an Allen Memorial Association for the purpose of executing some fitting memorial to the memory of the late Dr. Julian Howard Allen.

Deaths

Dr. John L. Dawson, aged 58, died at his home in Charleston on February 20.

Dr. J. W. Team, aged 45, died at Ridgeway on February 24.

Dr. Thomas B. Duckett, aged 54, died at his home in Fountain Inn on February 26.

OKLAHOMA

At Tulsa, work is to begin next month on a new 500-bed hospital to be erected by the Sisters of the Sorrowful Mother. Of the $500,000 to be used in the erection of this hospital the citizens of Tulsa subscribed $310,000.

Due to the ardent efforts of the State Medical Association, the State Legislature recently passed a medical license bill requiring all persons offering to cure disease or holding themselves up to the public as doctors or physicians to pass an examination at the hands of the State Board of Medical Examiners.

Dr. James P. Bartley, Bartlesville, and Miss Elizabeth Enser, Baltimore, were married on March 1.

Deaths

Dr. Moses O. Moore, aged 38, Spiro, was killed in an automobile accident near Poteau on March 6.

Dr. Leroy M. Lee, aged 65, died at his home near Orlando on March 16.

Dr. J. H. Hanson, aged 69, died at his home in Grandfield on March 11.

Dr. D. W. Moorhead died in Oklahoma City on March 10.

TENNESSEE

At Nashville, the eighty-fourth annual session of the Tennessee State Medical Association was held April 3 to 5, Dr. Charles N. Cowden, Nashville, presiding. The following officers were elected: Dr. Edward T. Newell, Chattanooga, President; Vice Presidents: Eastern Tennessee, Dr. H. M. Cass, Johnson City; Middle Tennessee, Dr. T. G. Pollard, Nashville; Western Tennessee, Dr. W. O. Sullivan, Newbern; Treasurer, Dr. J. F. H. Galligher, Nashville (re-elected); Secretary, Dr. Olin West, Nashville (re-elected).

At Chattanooga, twelve physicians have been enlisted in the Medical Reserve Corps of the Army.

At Nashville, twenty students from the Vanderbilt University Medical Department have signed applications for commissions in the Medical Reserve Corps of the Navy.

Dr. W. V. Pruett, Brownsville, and Miss Elizabeth Selden Henry, Chicago, were married on March 5.

Deaths

Dr. J. D. Anderson, aged 75, died at his home in Bristol on March 30.

Dr. H. L. Williford, aged 62, died at his home in Bartlett on February 28.

Dr. E. M. Williams, aged 44, died at his home in Memphis on April 12.

Dr. G. A. McClain, aged 68, died at his home in Johnson City on March 28.

(Continued on page 36)

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Chicago

(1591)

TEXAS

At El Paso, recently, due to the spread of measles and mumps among the soldiers, a strict quarantine was put on the camp and only soldiers on military business were allowed to enter the city.

At Dallas, on May 8, 9 and 10, will be held the fifty-first annual session of the State Medical Association with the following officers presiding: President, Dr. J. M. Inge, Denton; President-elect, Dr. E. H. Cary, Dallas; Vice Presidents, Drs. R. Y. Lacy, Pittsburg; C. R. Johnson, Gainesville, and W. L. Brown, El Paso; Secretary, Dr. Holman Taylor, Fort Worth; Treasurer, Dr. W. L. Allison, Fort Worth.

Deaths

Dr. Samuel R. Graves died in Lockhart on February 24.

Dr. J. W. McCulloch died at his home in Argyle on February 17.

Dr. W. N. Bunkley, Stamford, died at his home in that city on February 20.

Dr. G. J. Pickering, aged 99, died in Zavalla on February 4.

Dr. J. G. Boyd, aged 54, died at his home in Houston on February 27.

Dr. I. F. Houx, aged 80, Gordon, died at Fort Worth on March 21.

Dr. John Cameron died at his home in Wheelock on February 19.

WEST VIRGINIA

At Marlinton, Dr. O. A. Howard was adjudged not guilty of the murder of his wife.

Dr. James C. McConaughey, Cameron, and Miss Edna O'Neill, Wayne, Pa., were married on February 28.

Deaths

Dr. Charles Locke Skinner, aged 42, died at his home in Charleston on March 24.

VIRGINIA

At Lynchburg, on April 16, 17 and 18, was held the annual meeting of the Virginia Public Health Association.

At Norfolk, a new city health department has been organized and is planning a reorganization of the health affairs of the city.

At Richmond, in keeping with the economical policy pursued by the city, the Administrative Board of the City has reduced the number of district physicians from seven to six.

At Richmond, at a recent meeting of the Faculty of the Medical College of Virginia, Dr. William L. Peple was elected Professor of Clinical Surgery to succeed Professor Emeritus Dr. H. M. Taylor. Dr. L. S. B. Moon was elected Professor of Pathology and Dr. E. C. L. Miller was re-elected Professor of Bacteriology and Physiological Chemistry.

At Richomnd, Dr. E. C. Levy, who recently resigned the position of City Health Officer to accept a position with the North Public Health Bureau, New York City, will be succeeded by Dr. Roy K. Flannagan, Assistant State Health Commissioner.

At Clifton Forge, the new $70,000 Chesapeake & Ohio Railway Hospital, was formally opened on April 2.

At Charlottesville, a new medical mission has been established at Rock Hill by the University of Virginia Y. M. C. A. Extension Department. Members from the fourth year class hold clinics and administer medicine.

Dr. W. B. Porter, Richmond, was married to Miss Martha Spruill, Rocky Mountain, N. C., on April 12.

Dr. E. M. Chitwood, Austinville, was married to Miss Ethel Tipton, Hillsville, February 28.

Deaths

Dr. D. J. Long, aged 47, Piedmont, died in Baltimore, Md., on March 24 as the result of recent injuries sustained in an automobile accident.

Dr. R. V. Palmer, aged 45, Cherrydale, killed himself in Washington on April 6.

Dr. B. W. Hines, aged 83, died at his home near Pilot on April 16.

Dr. William H. Taylor, aged 82, died at his home in Richmond on April 14.

Dr. George S. Walker died in Staunton on March 15.

Dr. S. P. Hite died at Radford on March 10.

Dr. W. W. Wilkinson, aged 40, died at Catawba Sanatorium on March 28 from tuberculosis.

Dr. Joseph W. Baker died at his home in Louisa on March 14.

PLACEBOES

ONE OF THEIR TRAITS

Jennie (aged eight)—It says in the paper that another oc-to-gen-ar-ian is dead. What is an oc-to-gen-ar-ian?

Herbert (aged ten)—I don't know what they are, but they must be awfully sickly. You never heard of 'em but they're dying.—*Exchange.*

THE TROUBLE WITH HIM

"You had him for a patient once, didn't you?" asked Gaddie.

"Yes," replied Dr. Wise, "just once."

"What was the matter?"

"He didn't pay his bills."—*Philadelphia Press.*

HE SPOKE TOO FAST

No doubt the doctor spoke rashly. An inquisitive niece, seeing him return from the funeral of a wealthy patient, innocently inquired:

"Uncle Tom, do you attend the funerals of all your patients who die?"

"Good heavens, no," said the doctor. "Do you think I have nothing to do but go to funerals?"—*Exchange.*

COULDN'T SAY

Dispensary Doctor—Did you ever spit blood?

Patient—Really, doctor, I never tried.—*Medical Pickwick.*

(Continued on page 38)

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So carefully selected that we get but 10 pounds from a bushel.

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That is Quaker Oats.

They hold first place the world over. In the British Isles—the home of Scotch and Irish oats—they outsell any other brand.

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10c and 25c Per Package

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Quaker Oats

The Flavory Flakes

(1593)

(Continued from page 36)

A TENSE SITUATION

Squire—Well, Matthew, and how are you now?

Convalescent—Thankee, sir, I be better than I were, but I beant as well as I were afore I was as bad as I be now.—*Punch.*

WHAT'S IN A NAME?

Doctor—There's the original prescription. I can't imagine how you made that mistake in putting it up!

Druggist—Humph! I must have mixed your signature in with the other ingredients.—*Judge.*

OH, I SEE

"How much does that stylish doctor of yours charge?"

"Ten dollars a visit."

"Gee! How often has he called at your house this month?"

"Twenty times."

"Gosh! You owe him $200, then?"

"Nope, only $10. He's made the other nineteen calls trying to collect it."—*Cleveland Leader.*

PRECAUTION

Groceryman—Pat, do you like apples?

Pat—Shure, sor, Oi wouldn't ate an apple for the world.

Groceryman—Why, how is that?

Pat—Ough! didn't me old mother die of apple plexy?—*The Girl's World.*

Dakin Solution made according to the formulae used by Dr. Alexis Carrel at Hospital Militaire, No. 21 Compiegne, France, in one-gallon jugs 85c, five gallon jugs $4.00.

See article by Dr. Lloyd Noland, Southern Medical Journal, December 1916, Page 1056
Reprint of article, and descriptive circular of apparatus mailed on request

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DIURETIC
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Dr. Henry Froehling, of Froehling & Robertson, Chemists, Richmond, Va., on October 30, 1914, collected in person water from Stafford Springs from which to make an exhaustive test. A complete report has just been made on the water—a report that justifies all the claims made of Stafford Water by its many friends.

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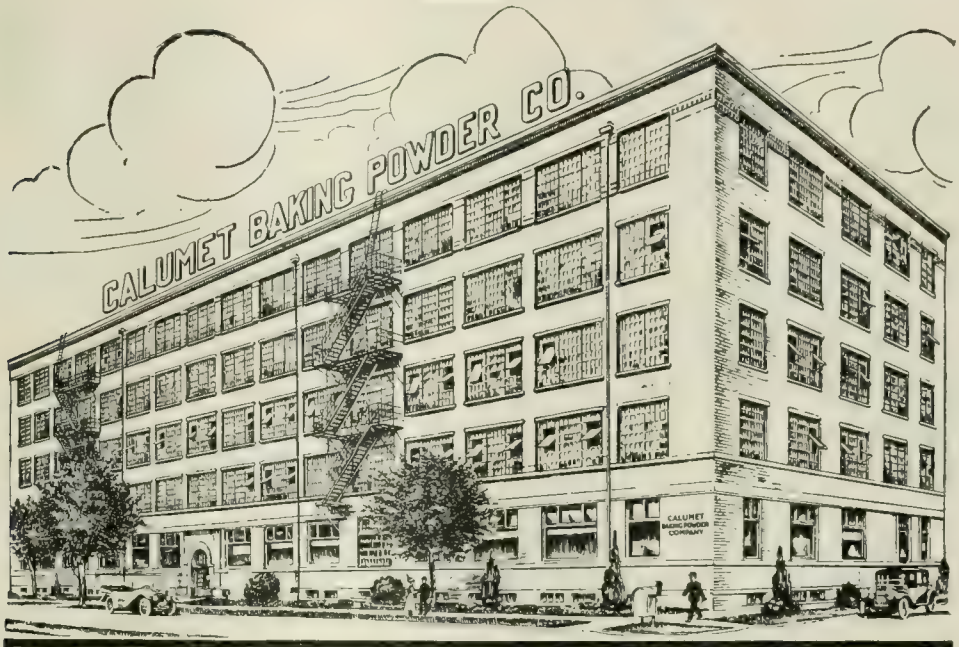

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If treatment does not give entire relief, skin tests may be made to discover possible hypersusceptibility to pollen not contained in the Vaccine.

Hay Fever Vaccine Spring is furnished in:

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Syringe A contains 0.0025 mg. extract of the pollen protein
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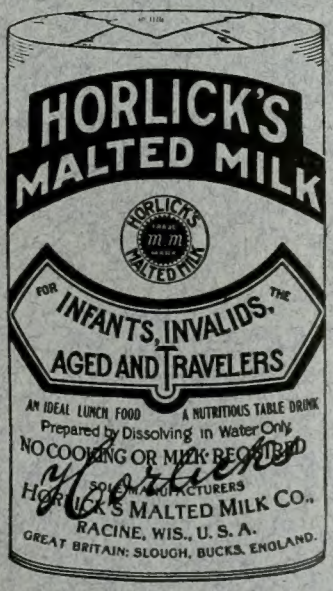
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